9-1095-205-34-6

TM 9-1095-205-34-6

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS DIRECT SUPPORT/GENERAL SUPPORT MAINTENANCE

ELECTRICAL WIRING
(DIRECT SUPPORT)
Page 16-1

CHASSIS
(DIRECT SUPPORT)
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MAGAZINE ASSEMBLIES
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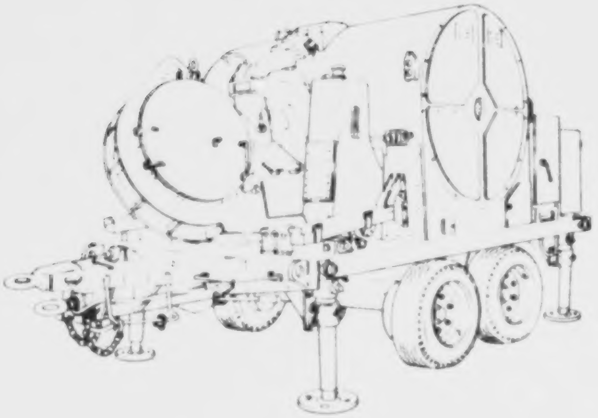
DIESEL POWERED HYDRAULIC
PUMPING UNIT
(GENERAL SUPPORT)
Page 19-1



M128 GROUND VEHICLE MINE DISPENSER (1095-00-397-3456)

HEADQUARTERS, DEPARTMENT OF THE ARMY

September 1984

READEX FICHE best copy available

D 101.11:

WARNINGS AND FIRST AID DATA

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is colorless and odorless, but it can kill you. Breathing carbon monoxide causes headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Heavy exposure can cause brain damage or death. Exhaust fumes of fuel burning heaters and internal combustion engines contain carbon monoxide. Carbon monoxide becomes dangerously concentrated when there is no air movement. Always follow safety precautions when the engine coolant heater or dispenser diesel engine is operated for any purpose.

1. DO NOT operate coolant heater or diesel engine in a closed place unless the place has a lot of moving air.
2. DO NOT idle diesel engine for long periods without ventilation.
3. BE ALERT at all times for exhaust odors and exposure symptoms. If either is present, IMMEDIATELY remove affected crew to fresh air. Keep them warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give them artificial respiration.

   FOR ARTIFICIAL RESPIRATION, REFER TO FM 21-11.
4. BE AWARE: the chemical, biological, and radiological (CBR) protective mask WILL NOT protect you from carbon monoxide.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

Cleaning solvent can explode and can burn. Keep it away from heat or open flame. NO SMOKING. Solvent fumes can make you sick. USE IN A WELL VENTILATED AREA. Keep solvent off your skin as much as you can.

WARNING

Asbestos dust can be harmful to your health. Clean brake assembly parts in ventilated area.

WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel. Remove battery ground cable before working on fuel system.

WARNING

You will be injured if dispenser falls on you. Use hydraulic jack to support dispenser during and after removal of leveling jack. Remove and install only one leveling jack at a time.

GO TO NEXT PAGE

WARNINGS AND FIRST AID DATA — Continued

WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

WARNING

Flying bits of metal could blind you. Always wear goggles when you cut metal or use power tools.

WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

WARNING

Compressed air can hurt you. Never aim air at soldiers or use more pressure than 30 psi (207 kPa). Always wear goggles.

WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

WARNING

Hydraulic system pressure could reach 3400 psi (23,450 kPa) during startup. A high pressure fluid jet can hurt you. Wear goggles when you check for leaks.

WARNING

Gas that flows into accumulator during precharging is under high pressure. A high pressure gas jet can hurt you. Make sure gas chuck and nitrogen supply connections are tight.

WARNING

Emergency valve drain plug is under pressure and can fly off and hurt you. Open air tank drain valve before you remove emergency valve drain plug.

WARNING

Hot coolant can burn you. Do not get hot coolant on skin. Turn radiator cap slowly to let out pressure.

WARNING

Coolant heater exhaust gases and exhaust tube can burn you. Keep your hands at a safe distance from coolant heater exhaust tube while coolant heater is running.

WARNING

Running the engine and operating the dispenser causes many parts to heat up. DON'T TOUCH any of the following parts when they are hot from use.

- Coolant Hoses
- Exhaust Pipe
- Oil Filters
- Hydraulic Pumps
- Radiator
- Engine Parts

WARNING

Extremely cold and hot parts can injure you. Use gloves when handling extremely cold and hot parts.

WARNING

Launcher guides have sharp edges that can hurt you. Wear gloves when handling launcher guides.

WARNING

Holes in rocker arm shaft have sharp edges that can hurt you. Be careful when you handle rocker arm shaft.

WARNING

Engine parts could hurt you. Stay clear of moving parts when engine is running.

WARNING

Parts rotating at high speeds can harm you. Keep objects away from parts rotating at high speeds.

WARNING

Reel can hurt you when it rotates. Hold reel when removing or installing master link.

WARNING

Launcher can harm you when it oscillates. Make sure manual bypass valve is at OPEN before you move launcher by hand.

WARNING

Air chamber assembly cover is spring loaded and could fly off and hurt you. Hold chamber assembly together during cover removal.

WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

GO TO NEXT PAGE

WARNINGS AND FIRST AID DATA — Continued

WARNING

Spring loaded radiator vanes can hurt you. Do not let vanes snap shut on your fingers.

WARNING

Hydrogen gas from batteries can explode and hurt you. Do not allow sparks near batteries. Battery acid can burn or blind you. Do not get acid on your skin or eyes.

WARNING

Battery posts and cables touched by metal objects can short circuit and burn you. Do not wear jewelry, including watches, or let ID tags hang down, when working on the electrical system. Keep tools away from posts, wires, and terminals.

WARNING

A short circuit can cause welding heat. Make sure MASTER POWER switch is in down (OFF) position when you repair electrical circuits or parts.

WARNING

Axle assembly and wheels are heavy. They can fall and hurt you when springs come out of spring shackles. Do not get under wheels and axle unless they are properly supported.

WARNING

Launcher can hurt you when it oscillates or if it throws tools or parts during oscillation. When engine is running, stay clear of launcher deck, and keep tools and parts off launcher deck.

WARNING

Current of 50 — 70 amp can cause severe burns or other injury. Make sure all connections are tight. Keep tools clear of armature during test. Do not wear jewelry or watch. Wear goggles.

WARNING

Capacitor can discharge and injure you. Discharge capacitor before working on circuit.

WARNING

You can be hurt or killed if practice mines strike you after they have been launched. Do not stand closer than 70 yd (68.5 m) behind mine dispenser that is dispensing practice mines.

INSERT LATEST CHANGED PAGES.
DESTROY SUPERSEDED PAGES.

LIST OF EFFECTIVE PAGES

NOTE

The portion of the text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands.

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 481
CONSISTING OF THE FOLLOWING:

PAGE NO.	*CHANGE NO.	PAGE NO.	*CHANGE NO.
Cover	0	17-11 thru 17-25	0
a thru d	0	17-26 blank	0
A	0	18-1	0
B blank	0	18-2 blank	0
i	0	18-3 thru 18-69	0
ii blank	0	18-70 blank	0
16-1	0	18-71 thru 18-82	0
16-2 blank	0	19-1	0
16-3 thru 16-137	0	19-2 blank	0
16-138 blank	0	19-3 thru 19-75	0
16-139 thru 16-151	0	19-76 blank	0
16-152 blank	0	19-77 thru 19-81	0
16-153 thru 16-158	0	19-82 blank	0
17-1	0	19-83 thru 19-147	0
17-2 blank	0	19-148 blank	0
17-3 thru 17-9	0	19-149 thru 19-200	0
17-10 blank	0	Index 1 thru Index 6	0

* Zero in this column indicates an original page.

TECHNICAL MANUAL

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 1 September 1984

DIRECT SUPPORT/GENERAL SUPPORT MAINTENANCE MANUAL

M128 GROUND VEHICLE MINE DISPENSER

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander; U.S. Army Armament, Munitions and Chemical Command; ATTN: DRSMC-MAS (R); Rock Island, IL 61299. A reply will be furnished to you.

VOLUME 6

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CHAPTER 16

ELECTRICAL WIRING (DIRECT SUPPORT)

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

16-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

16-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are authorized for the M128 Ground Vehicle Mine Dispenser.

16-3 REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list TM 9-1095-205-34P, covering direct support and general support maintenance for this equipment.

Section II. MAINTENANCE PROCEDURES

16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES

DESCRIPTION

This task covers:

A. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB (p 16-6)
B. TYPICAL CONDUIT FITTING COVER REMOVAL (p 16-7)
C. TYPICAL CONNECTOR HUB REMOVAL (p 16-7)
D. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT (p 16-8)
E. TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL (p 16-10)
F. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK (p 16-11)
G. TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION (p 16-12)
H. TYPICAL FISH TAPE INSTALLATION IN CONDUIT (p 16-13)
I. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT (p 16-14)
J. TYPICAL CONNECTOR HUB INSTALLATION (p 16-16)
K. TYPICAL CONDUIT FITTING COVER INSTALLATION (p 16-16)
L. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB (p 16-17)
M. LAUNCHER HOOKUP CABLE ASSEMBLY J9 REMOVAL (p 16-19)
N. LAUNCHER HOOKUP CABLE ASSEMBLY J9 INSTALLATION (p 16-23)
O. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 REMOVAL (p 16-28)
P. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 INSTALLATION (p 16-31)
Q. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 REMOVAL (p 16-35)
R. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 INSTALLATION (p 16-38)
S. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 REMOVAL (p 16-43)
T. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 INSTALLATION (p 16-46)
U. MAIN CONTROL PANEL CABLE ASSEMBLY P35 REMOVAL (p 16-50)
V. MAIN CONTROL PANEL CABLE ASSEMBLY P35 INSTALLATION (p 16-54)
W. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 REMOVAL (p 16-58)
X. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 INSTALLATION (p 16-62)
Y. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 REMOVAL (p 16-66)
Z. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 INSTALLATION (p 16-69)
AA. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A REMOVAL (p 16-73)

GO TO NEXT PAGE

DESCRIPTION — Continued

AB. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A INSTALLATION (p 16-77)
AC. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A REMOVAL (p 16-82)
AD. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A INSTALLATION (p 16-86)
AE. WIRE BUNDLE ASSEMBLY 1PB REMOVAL (p 16-90)
AF. WIRE BUNDLE ASSEMBLY 1PB INSTALLATION (p 16-93)
AG. WIRE BUNDLE ASSEMBLY 2PB REMOVAL (p 16-97)
AH. WIRE BUNDLE ASSEMBLY 2PB INSTALLATION (p 16-101)
AI. WIRE BUNDLE ASSEMBLY JB3 REMOVAL (p 16-104)
AJ. WIRE BUNDLE ASSEMBLY JB3 INSTALLATION (p 16-109)
AK. WIRE BUNDLE ASSEMBLY JB4 REMOVAL (p 16-114)
AL. WIRE BUNDLE ASSEMBLY JB4 INSTALLATION (p 16-118)
AM. LEAD ASSEMBLY WIRE NO. 13 REMOVAL (p 16-123)
AN. LEAD ASSEMBLY WIRE NO. 13 INSTALLATION (p 16-126)
AO. LEAD ASSEMBLY WIRES NO. 1 AND 2 REMOVAL (p 16-129)
AP. LEAD ASSEMBLY WIRES NO. 1 AND 2 INSTALLATION (p 16-133)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - 9/16 inch open end wrench
  - 3/8 inch box end wrench
  - 5/8 inch box end wrench
  - 3/8 inch socket
  - 2 inch extension
  - 5/16 inch flat tip screwdriver
  - Ratchet handle
  - No. 2 cross tip screwdriver
  - 1/4 inch flat tip screwdriver
  - 3/8 inch flat tip screwdriver
  - 10 inch adjustable wrench
  - 6 inch paint brush
  - Putty knife
  - Diagonal cutting pliers
- Slip joint pliers 5120-00-278-0352
- 10 inch pipe wrench 5120-00-277-1485
- Crimping tool 5120-00-596-9313
- Wire marker
- Fish tape 5120-00-596-1584
- Multimeter 6625-00-999-6282
- Goggles 4240-00-269-7912
- Heat gun 4940-00-561-1002
- Wire stripper 5110-00-268-4224
- No. 2 offset cross tip screwdriver 5120-00-256-9014

Materials/Parts:

- Sealing compound, Item 25, Appendix B
- Adhesive sealant, Item 2, Appendix B
- Duct sealing compound, Item 6, Appendix B
- Cable ties 5975-00-727-5153
- Masking tape, Item 19, Appendix B
- Solvent, Item 28, Appendix B
- Rags, Item 22, Appendix B

Launcher Hookup Cable Assembly J9:

- Cord grip connector 5975-00-296-9437
- Gasket (3) 5330-01-083-2346
- Gasket (2) 5330-01-083-2345
- Gasket (4) 9290907

Vehicle Distance Encoder Cable Assembly P11:

- Cord grip connector 5975-00-803-2529
- Gasket (3) 9322115

Right Magazine Servo Actuator Cable Assembly P31:

- Cord grip connector 5975-00-803-2529
- Gasket (2) 9322106
- Gasket 5330-00-241-0228

Left Magazine Servo Actuator Cable Cable Assembly P32:
Cord grip connector 5975-00-803-2529
Gasket (2) 9322106
Gasket 5330-00-241-0228

Main Control Panel Cable Assembly P35:
Cord grip connector 5975-00-296-9437
Gasket 5330-00-241-0228
Gasket 9322106
Self-locking nut (2) 5310-00-959-1488

Oscillator Solenoid Valve Cable Assembly P41:
Cord grip connector 5975-00-296-9437
Gasket (3) 9322106
Gasket (2) 9322115
Gasket (4) 9290907
Self-locking nut 5310-00-877-5797

Launcher Wheel Solenoid Valve Cable Assembly P42:
Cord grip connector 5975-00-803-2529
Gasket (3) 9322106
Gasket (3) 9322115
Gasket 5330-00-241-0228
Gasket (4) 9290907
Self-locking nut 5310-00-877-5797
Self-locking nut 5310-00-088-1251

Left Magazine Bypass Solenoid Valve Cable Assembly P43/P43A:
Cord grip connector 5975-00-296-9437
Self-locking nut (2) 5310-00-877-5797
Gasket (4) 9290907
Gasket 5330-00-241-0228

Right Magazine Bypass Solenoid Valve Cable Assembly P44/P44A:
Cord grip connector 5975-00-296-9437
Self-locking nut (2) 5310-00-877-5797
Gasket (4) 9290907
Gasket 5330-00-241-0228

Wire Bundle Assembly 1PB:
Cord grip connector (2) 5975-00-803-2529
Gasket (2) 9322115
Gasket (3) 9290907
Gasket 5330-01-143-4915

Wire Bundle Assembly 2PB:
Gasket (5) 9322115
Gasket 9290907
Gasket 5330-01-143-4915

Wire Bundle Assembly JB3:
Gasket (3) 9322115
Gasket (2) 9290907

Wire Bundle Assembly JB4:
Gasket (3) 9322115
Gasket (3) 9290907

Lead Assembly Wire No. 13:
Cord grip connector 5975-00-803-2529
Gasket (2) 9322115
Gasket (4) 5330-00-241-0228
Gasket (2) 9322106

Lead Assembly Wires No. 1 and 2:
Cord grip connector 5975-00-844-7083
Gasket 9290907
Gasket 9322115
Self-locking nut (3) 5310-00-877-5797
Lock washer (2) 5320-00-637-9541

Personnel Required:
Electrical repairer
Helper

References:
TM 9-1095-205-10
TM 9-1095-205-20
B.I.T.E. ALARM PANEL ASSEMBLY, Page 11-195
POWER PANEL ASSEMBLY, Page 11-111

WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

GO TO NEXT PAGE

16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

OVERVIEW

This task tells how to replace cable, wire bundle, and lead assemblies. One end of each cable, wire bundle, and lead assembly is connected to Terminal Board 1TB. Each cable, wire bundle, and lead assembly runs through conduit. Twelve typical tasks tell how to do the steps necessary to replace a cable, wire bundle, or lead assembly. Removal and installation tasks for individual cable, wire bundle, and lead assemblies refer to the necessary typical tasks.

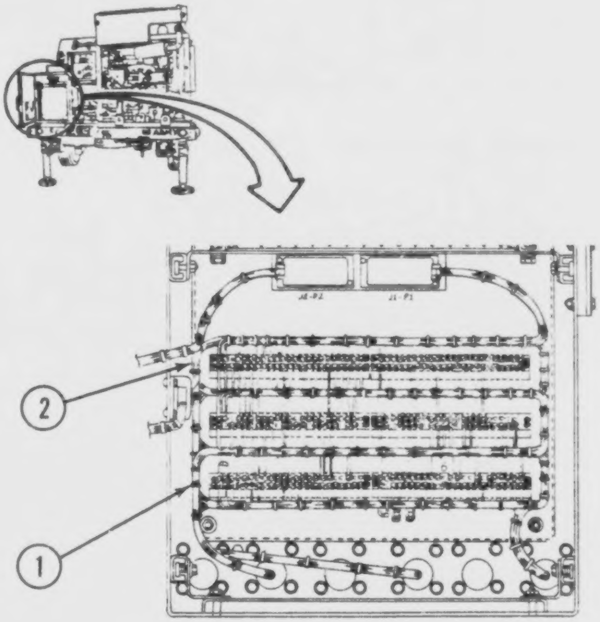
Wire destination lists are part of individual Removal procedures for cable, wire bundle, or lead assembly. Wiring diagrams are part of individual Installation procedures. See Description, Page 16-3, to find page number for Removal or Installation procedure needed.

A. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB

NOTE

All cables, wire bundles, and lead assemblies are tied into bundles at Terminal Board 1TB. Remove the cable ties required for maintenance.

1. REMOVE CABLE TIES FROM WIRE BUNDLE.
   - Remove cable ties (1) as required from wire bundle (2). Use diagonal cutting pliers. Discard cable ties.



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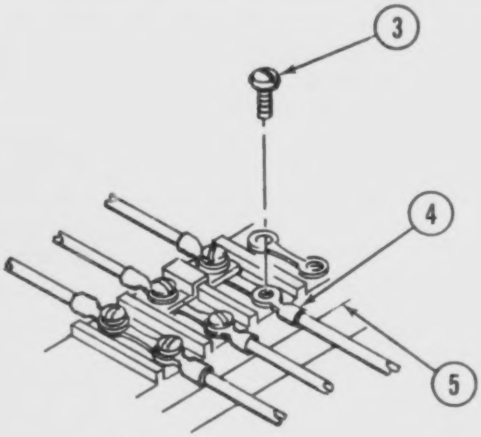
2. REMOVE CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY FROM TERMINAL BOARD 1TB.
   - Tag and mark leads. (See individual wire destination list.)
   - Remove screws (3) and tagged leads (4) from Terminal Board 1TB (5). Use 1/4 inch flat tip screwdriver.



B. TYPICAL CONDUIT FITTING COVER REMOVAL

WARNING

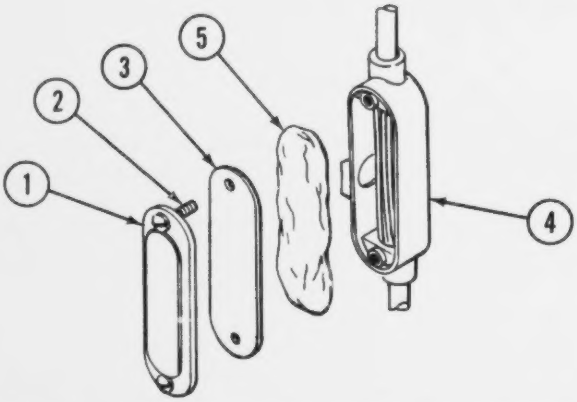
Cleaning solvent can explode and can burn. Read warning on front page of this manual.

NOTE

Cable, wire bundle, and lead assembly conduits have two kinds of conduit fittings: conduit tees, and conduit pulling elbows. Conduit fitting covers are removed so that leads can be pulled from conduit fittings. Conduit fitting covers are removed from conduit tees and conduit pulling elbows the same way. This procedure shows removal of conduit fitting cover from conduit tee.

REMOVE CONDUIT FITTING COVER FROM CONDUIT TEE.

- Remove conduit fitting cover (1) with two captive screws (2) and gasket (3) from conduit tee (4). Use 1/4 inch flat tip screwdriver. Discard gasket.
- Remove duct sealing compound (5) from conduit tee (4). Discard duct sealing compound.
- Remove adhesive sealant from conduit tee (4) and conduit fitting cover (1). Use putty knife, solvent, and brush.



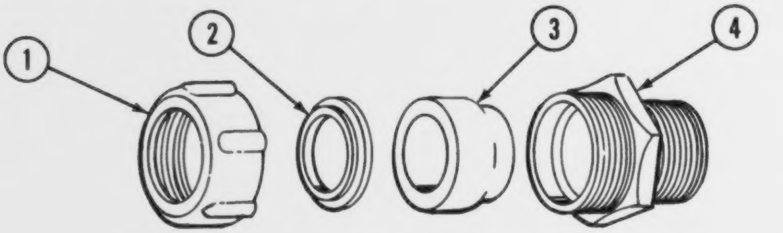
C. TYPICAL CONNECTOR HUB REMOVAL

NOTE

Cable, wire bundle, and lead assemblies are held in conduits by cord grip connectors. There are two kinds of cord grip connectors: straight cord grip connectors, and 90° cord grip connectors.

• • • •

A *straight cord grip connector* is composed of connector hub (1), spacer (2), bushing (3), and connector body (4).



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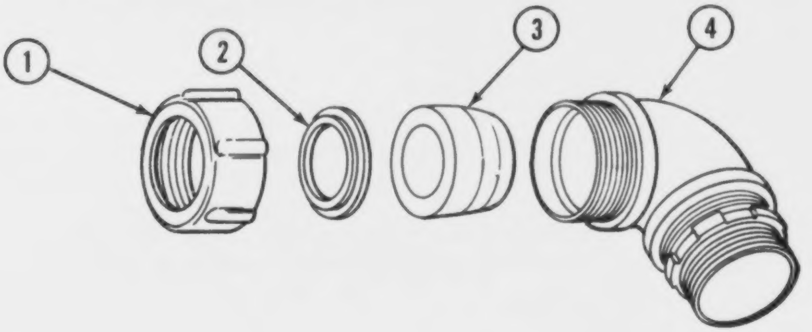
C. TYPICAL CONNECTOR HUB REMOVAL — Continued

NOTE

A 90° *cord grip connector* is composed of connector hub (1), spacer (2), bushing (3), and 90° elbow (4).

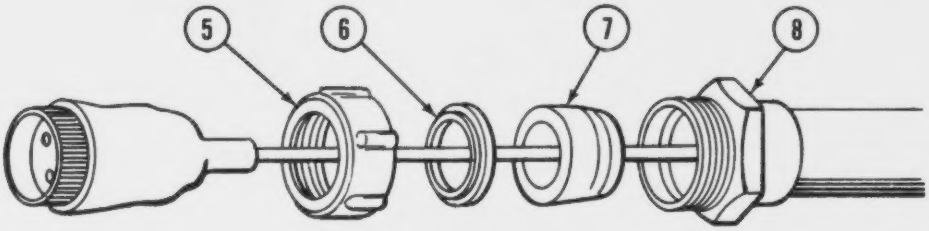


• • • •

Connector hubs are removed from straight and 90° cord grip connectors the same way. This procedure shows a straight cord grip connector.

REMOVE CONNECTOR HUB FROM CONNECTOR BODY.

- Remove connector hub (5), spacer (6), and bushing (7) from connector body (8). Use slip joint pliers.

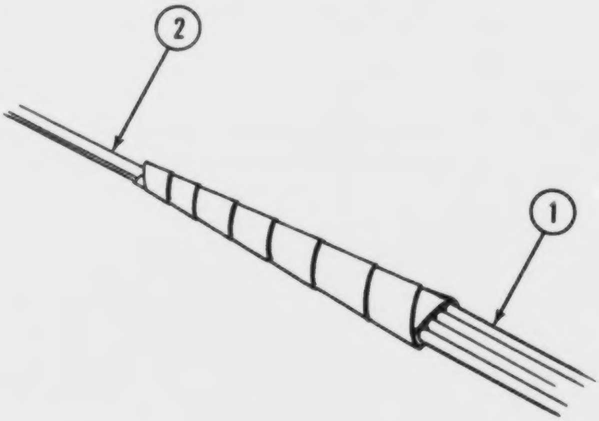


D. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT

NOTE

If removing cable, wire bundle, or lead assembly to replace conduit group or conduit assembly, go to step 2.

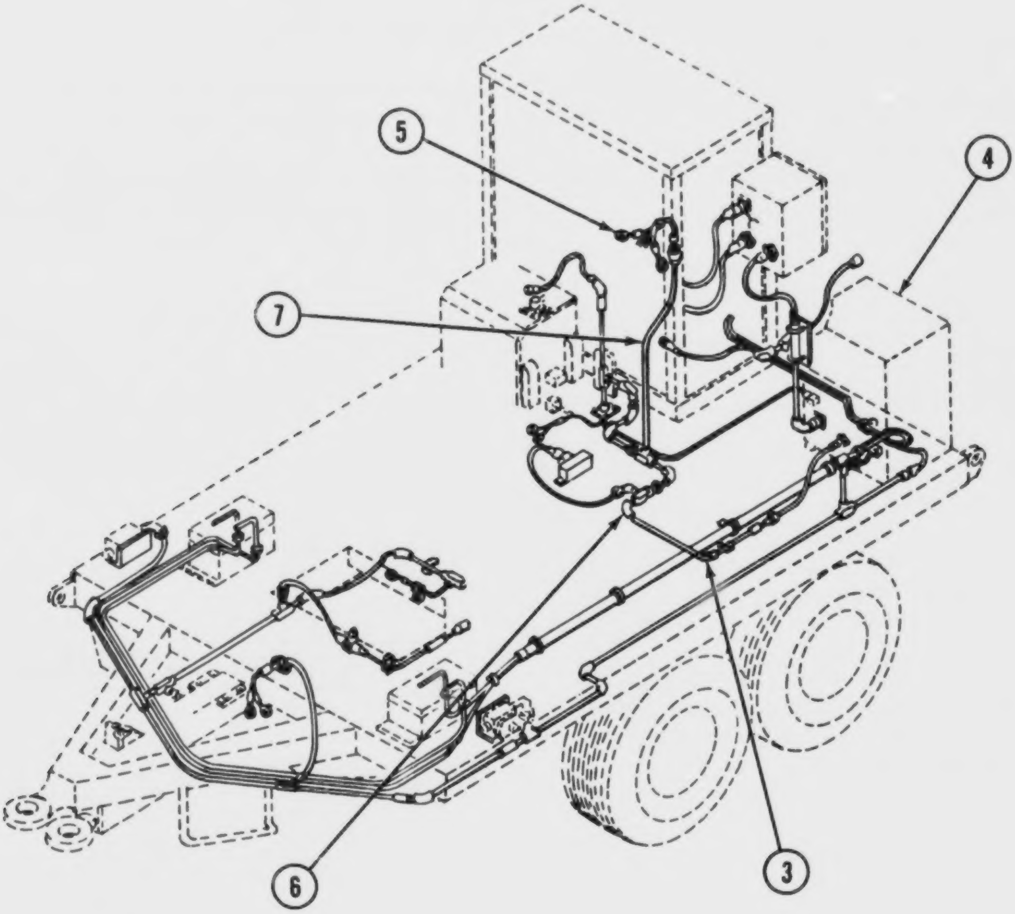
1. ATTACH FISH TAPE TO DISCONNECTED LEADS OF CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY.
   - Tape disconnected leads (1) together. Use masking tape.
   - Attach fish tape (2) to leads (1).



NOTE

If a section of conduit is being replaced, remove cable, wire bundle, or lead assembly from conduit sections as required.

2. REMOVE CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY FROM CONDUIT.
   - Locate conduit fitting (3) closest to JB1 (4).
   - Remove conduit fitting cover. (See Typical Conduit Fitting Cover Removal, Page 16-7.)
   - Pull cable, wire bundle, or lead assembly (5) from conduit fitting (3). Use helper.
   - Locate next conduit fitting (6) on conduit (7).
   - Remove conduit fitting cover. (See Typical Conduit Fitting Cover Removal, Page 16-7.)
   - Pull cable, wire bundle, or lead assembly (5) from conduit fitting (6). Use helper.
   - Repeat above removal steps until cable, wire bundle, or lead assembly (5) can be pulled from conduit (7).
   - Remove cable, wire bundle, or lead assembly (5) from conduit (7). Use helper.



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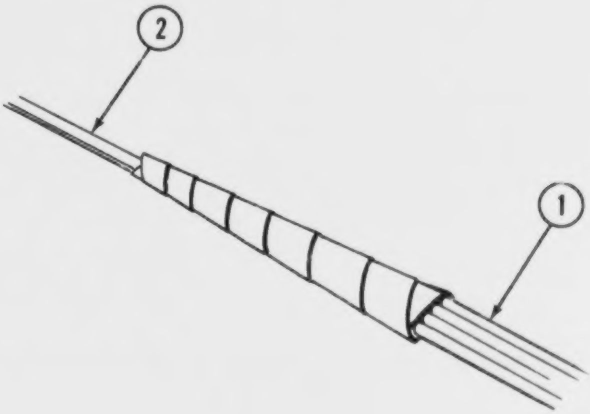
D. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT — Continued

NOTE

If no fish tape is connected to leads, go to step 4. Fish tape remains in conduit until cable, wire bundle, or lead assembly installation.

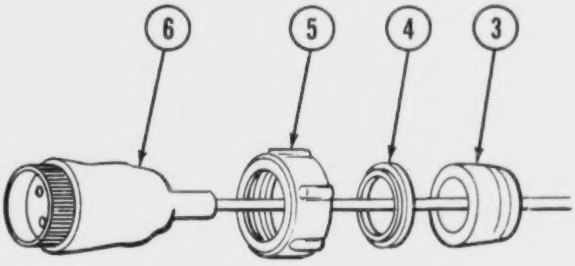
3. REMOVE LEADS (1) OF CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY FROM FISH TAPE (2).



NOTE

Remove bushing, spacer, and connector hub if they are on cable, wire bundle, or lead assembly.

4. REMOVE BUSHING (3), SPACER (4), AND CONNECTOR HUB (5) FROM CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY (6).



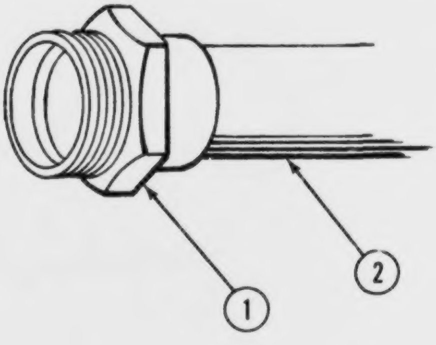
E. TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL

NOTE

Straight cord grip connector body and 90° elbow are removed from conduit or conduit fittings the same way. Procedure shows straight cord grip connector body and conduit.

REMOVE CONNECTOR BODY FROM CONDUIT.

- Remove connector body (1) from conduit (2). Use adjustable and pipe wrenches. Discard connector body.



F. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK

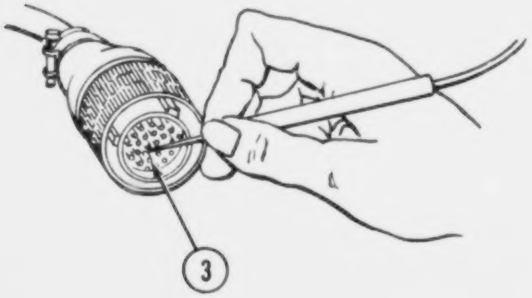
NOTE

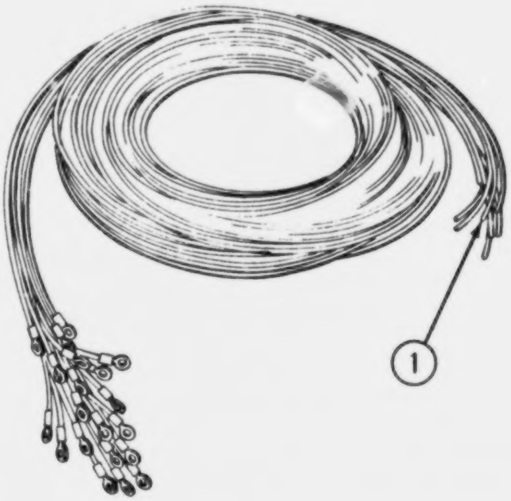
New cables, and Lead Assembly Wire No. 13, have connectors on one end and bare wires on the other end. New wire bundles, and Lead Assembly Wires No. 1 and 2, have crimp lug terminals on one end and bare wires on the other end. Cables, wire bundles, and lead assemblies that have been installed have crimp lug terminals instead of bare wires. Check all cables, wire bundles, and lead assemblies the same way. Procedure shows bare wires on one end.

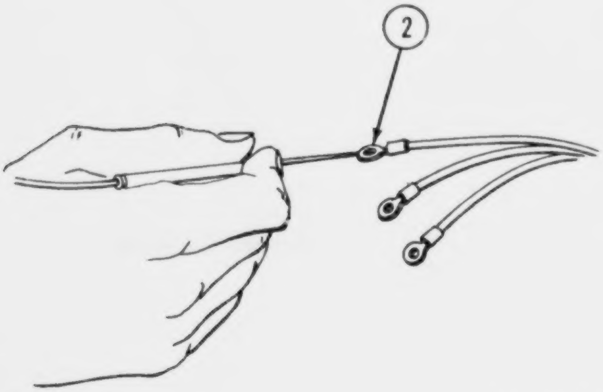
• • • •

To identify leads, see individual cable, wire bundle, or lead assembly wiring diagram.

1. IDENTIFY LEADS IN CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY
   - Set multimeter to R x 1.
   - Position one multimeter probe on bare wire (1).
   - Touch other multimeter probe to successive crimp lug terminals (2) or connector pins (3) until you have continuity.
   - Tag and mark lead. (See cable, wire bundle, or lead assembly wiring diagram.)
   - Repeat above identification steps for other leads.







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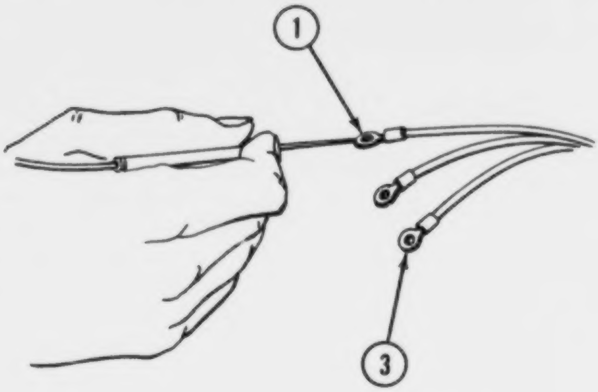
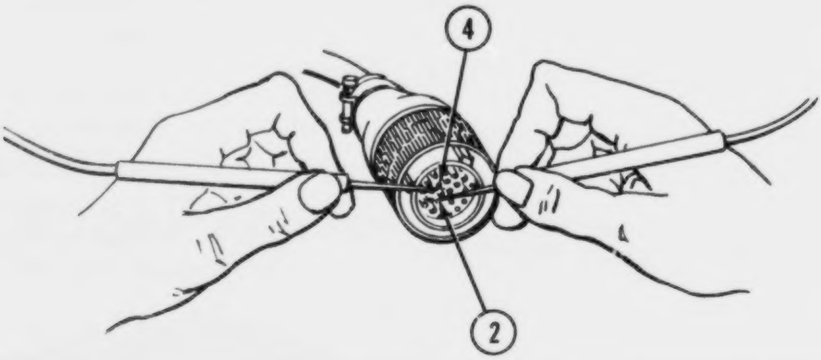
F. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK — Continued

2. CHECK CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY FOR INTERNAL WIRING SHORTS.
   - Set multimeter to R x 1.
   - Position one multimeter probe on crimp lug terminal (1) or connector pin (2).
   - Touch other multimeter probe to other crimp lug terminals (3) or connector pins (4). Multimeter should indicate infinite ohms. If multimeter indicates less than infinite ohms, cable, wire bundle, or lead assembly is faulty.
   - Repeat above check steps for each crimp lug terminal or connector pin.



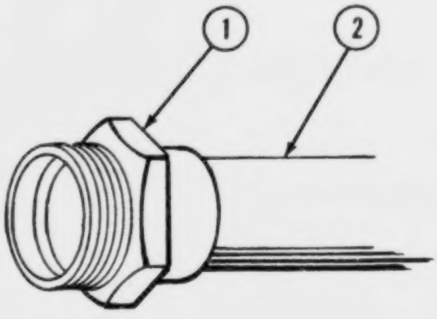


G. TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION

NOTE

Straight cord grip connector body and 90° elbow are installed on conduit or conduit fittings the same way. Procedure shows straight cord grip connector body and conduit.

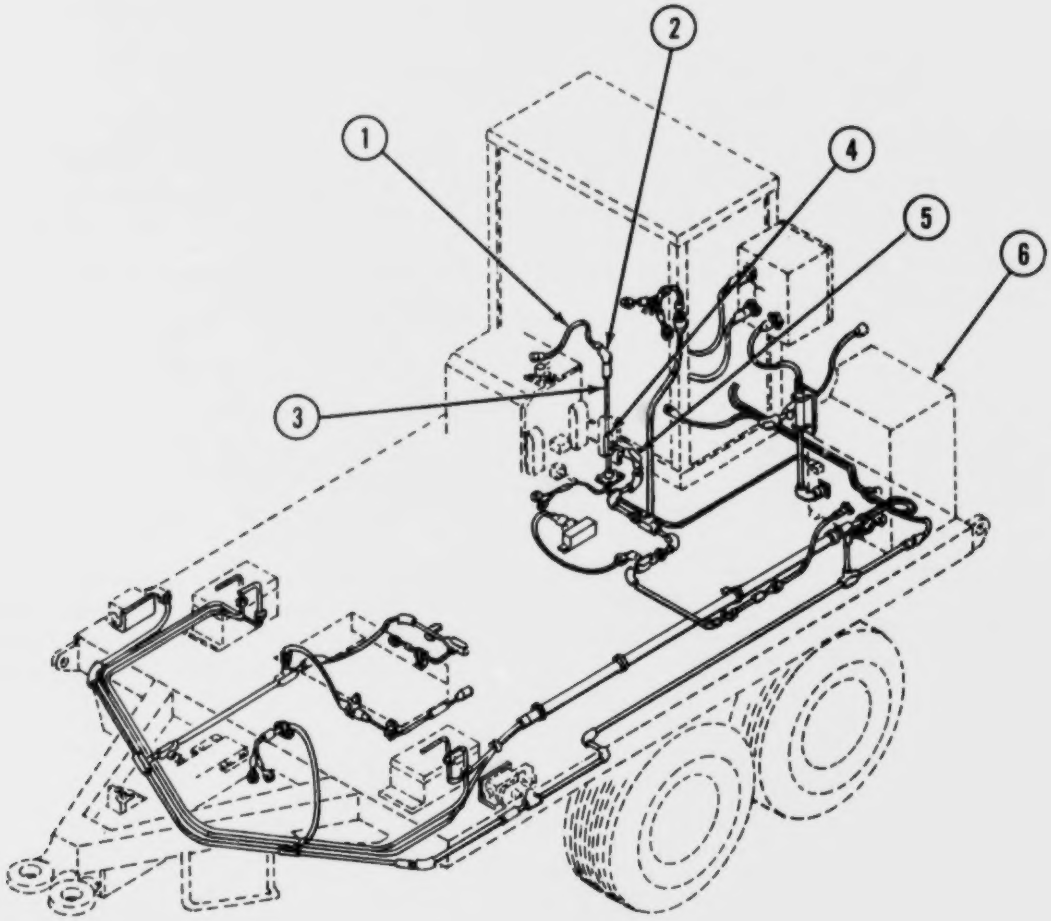
INSTALL CONNECTOR BODY ON CONDUIT.
- Apply sealing compound to threads of new connector body (1).
- Install connector body (1) on conduit (2). Use adjustable and pipe wrenches.



H. TYPICAL FISH TAPE INSTALLATION IN CONDUIT

INSTALL FISH TAPE IN CONDUIT.

- Push fish tape (1) through connector body (2) and into conduit (3). Push fish tape until end appears in conduit fitting (4). Use helper.
- Pull fish tape from conduit fitting (4).
- Push fish tape through conduit fitting (4), and into conduit (3) until end appears in conduit fitting (5). Use helper.
- Repeat above installation steps until fish tape end is in JB1 (6).



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16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

I. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT

NOTE

If conduit or conduit fitting is being replaced, new connector body or 90° elbow must be installed. If conduit or conduit fitting is not being replaced, new connector body or 90° elbow must be discarded.

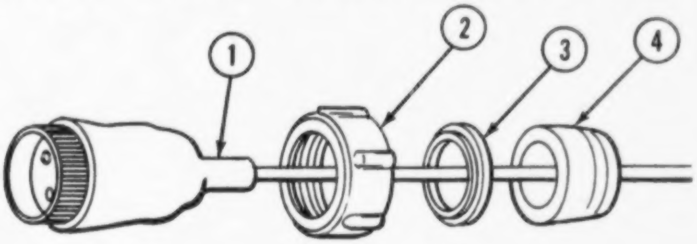
• • • •

New connector hub, spacer, and bushing must be placed on cable, wire bundle, or lead assembly before installation.

• • • •

Cable, wire bundle, and lead assemblies are installed the same way. Procedure shows cable assembly.

1. PLACE NEW CORD GRIP CONNECTOR ON CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY.
   - Identify end of cable, wire bundle, or lead assembly (1) to be connected to Terminal Board 1TB.
   - Place new connector hub (2), new spacer (3), and new bushing (4) over 1TB end of cable, wire bundle, or lead assembly (1).
   - Slide connector hub (2), spacer (3), and bushing (4) to other end of cable, wire bundle, or lead assembly (1).



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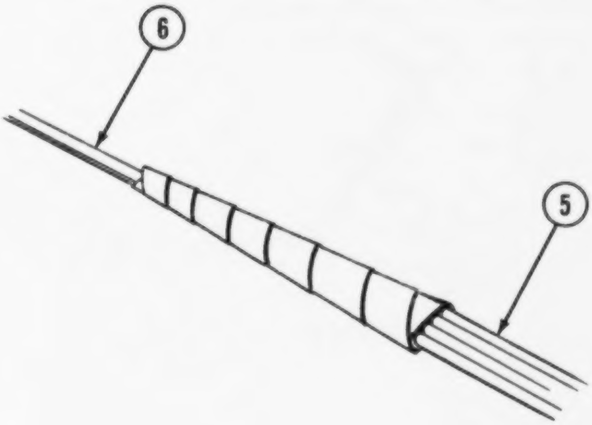
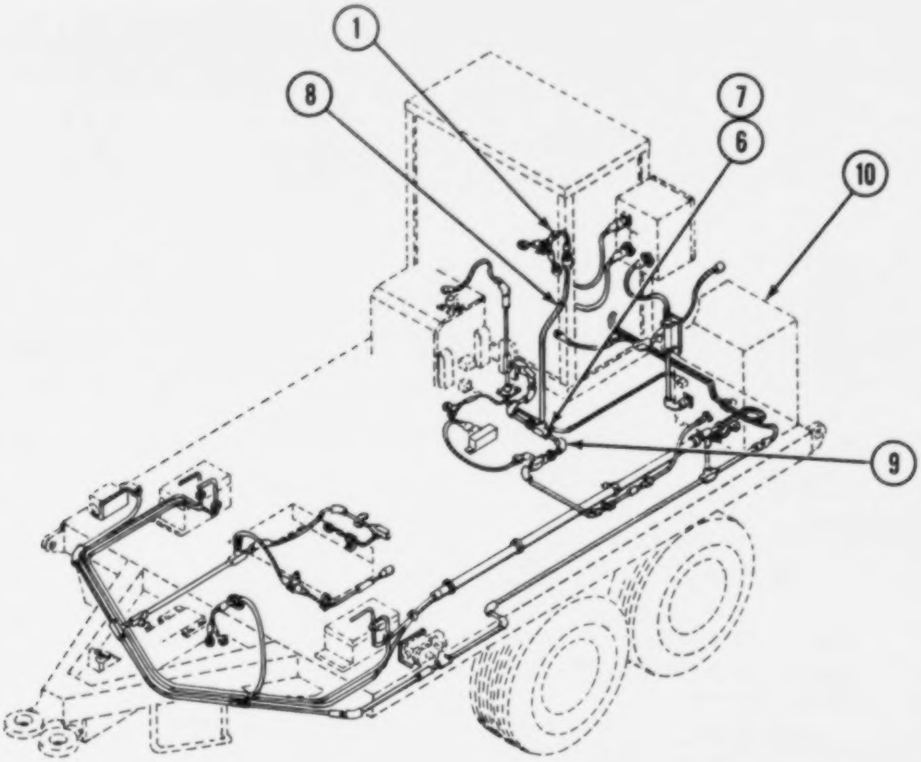
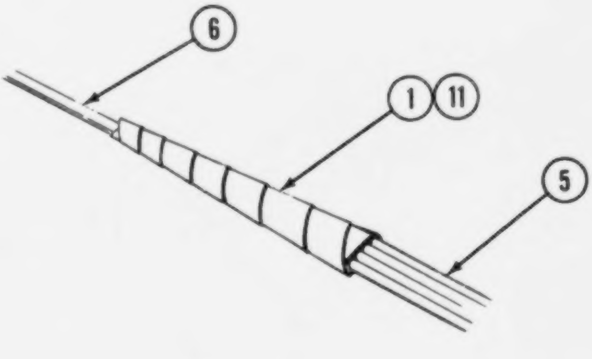
2. ATTACH FISH TAPE TO CABLE LEADS.
   - Tape leads (5) together. Use masking tape.
   - Attach fish tape (6) to leads (5).



3. INSTALL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IN CONDUIT
- Locate conduit fitting (7) closest to end of conduit (8).
- Pull loop of fish tape (6) with cable, wire bundle, or lead assembly (1) from conduit fitting (7). Use helper.
- Locate next conduit fitting (9) on conduit (8).
- Pull loop of fish tape (6) with cable, wire bundle, or lead assembly (1) from conduit fitting (9). Use helper.
- Repeat above installation steps until end of cable, wire bundle, or lead assembly (1) is in JB1 (10).



4. REMOVE FISH TAPE FROM CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY
- Remove fish tape (6) from cable, wire bundle, or lead assembly (1).
- Remove masking tape (11) from leads (5).



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16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

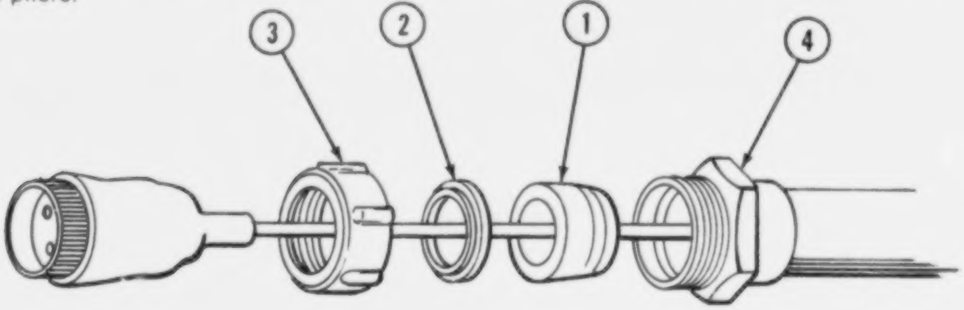
J. TYPICAL CONNECTOR HUB INSTALLATION

NOTE

Connector hubs are installed on connector body or 90° elbow the same way. Procedure shows connector body.

INSTALL NEW CONNECTOR HUB ON CONNECTOR BODY.

- Install new bushing (1), new spacer (2) and new connector hub (3) on connector body (4). Use slip joint pliers.



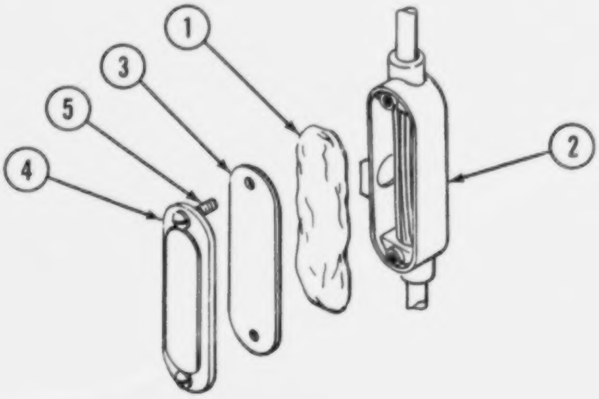
K. TYPICAL CONDUIT FITTING COVER INSTALLATION

NOTE

Conduit fitting covers are installed on conduit tees and conduit pulling elbows the same way. Procedure shows installation of conduit fitting cover on conduit tee.

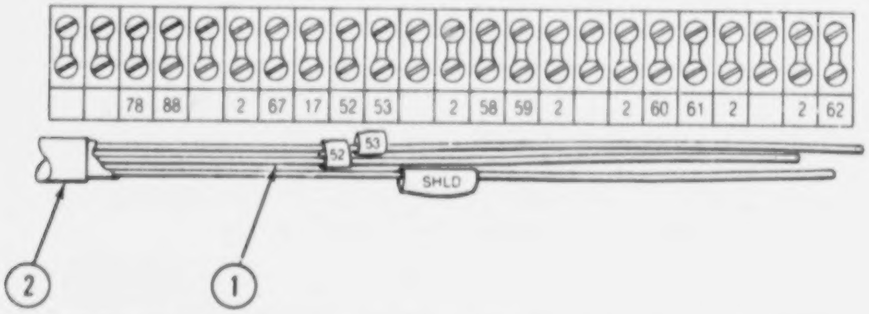
INSTALL CONDUIT FITTING COVER ON CONDUIT TEE.

- Apply new duct sealing compound (1) in conduit tee (2).
- Install new gasket (3) and conduit fitting cover (4) with two captive screws (5) on conduit tee (2). Use 1/4 inch flat tip screwdriver.
- Apply adhesive sealant around conduit fitting cover (4).



L. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB

1. POSITION CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY ON TERMINAL BOARD 1TB
   - Position leads (1) along wire bundle (2).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WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

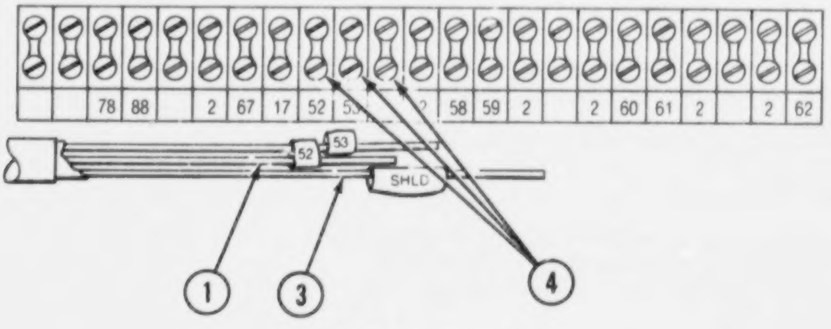
CAUTION

Wire scraps can damage power panel equipment. Cover power panel to protect power panel.

NOTE

If cable, wire bundle, or lead assembly leads have terminal lugs, go to step 5.

2. CUT LEADS.
   - Cut each lead (1) and shield (3) past their connection terminals (4). Use diagonal cutting pliers.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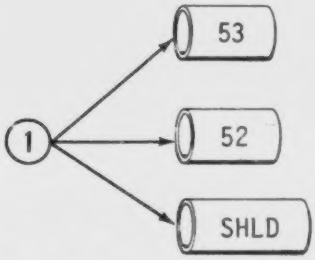
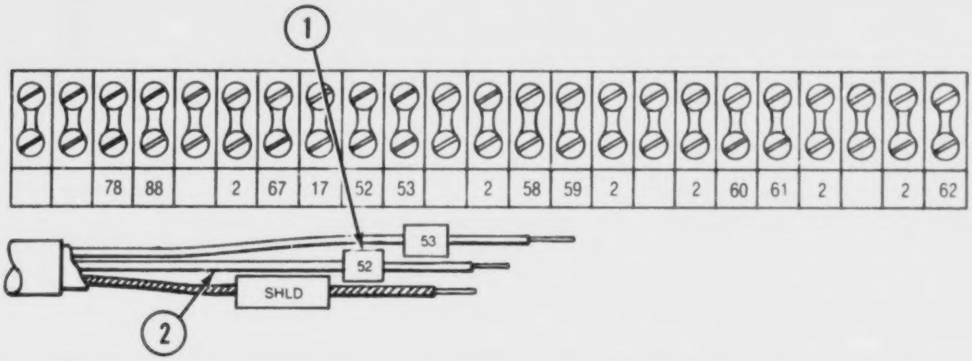
GO TO NEXT PAGE

L. TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB — Continued

3. INSTALL THERMOFIT MARKING SLEEVES ON LEADS.
   - Mark wire numbers on thermofit marking sleeves (1). Use wire marker.



- Position thermofit marking sleeve (1) on lead (2).
- Shrink thermofit marking sleeve (1) on lead (2). Use heat gun.
- Remove tag from lead (2).
- Repeat above installation steps for other thermofit marking sleeves.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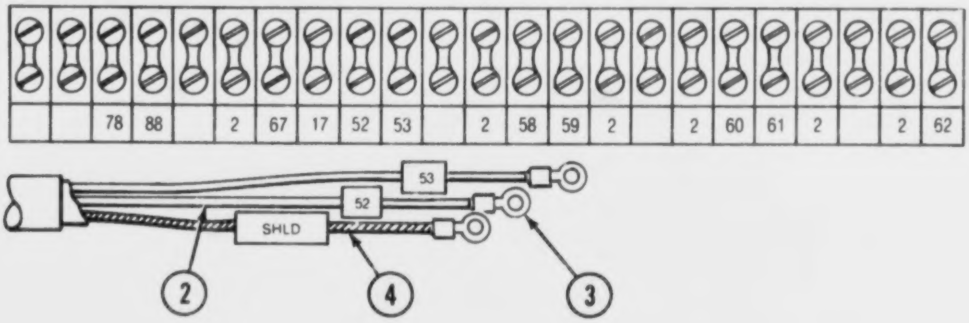
NOTE

All wires are stripped the same way. All crimp lug terminals are installed the same way. Step 4 shows Lead 52 and shielded lead.

4. INSTALL CRIMP LUG TERMINALS ON LEADS.
   - Strip lead (2). Use wire stripper.
   - Install crimp lug terminal (3) on lead (2). Use crimping tool.
   - Repeat above installation steps for other leads.
   - Peel back and twist shielding (4). Use diagonal cutting pliers.
   - Install crimp lug terminal (3) on shield (4). Use crimping tool.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SHLD
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4
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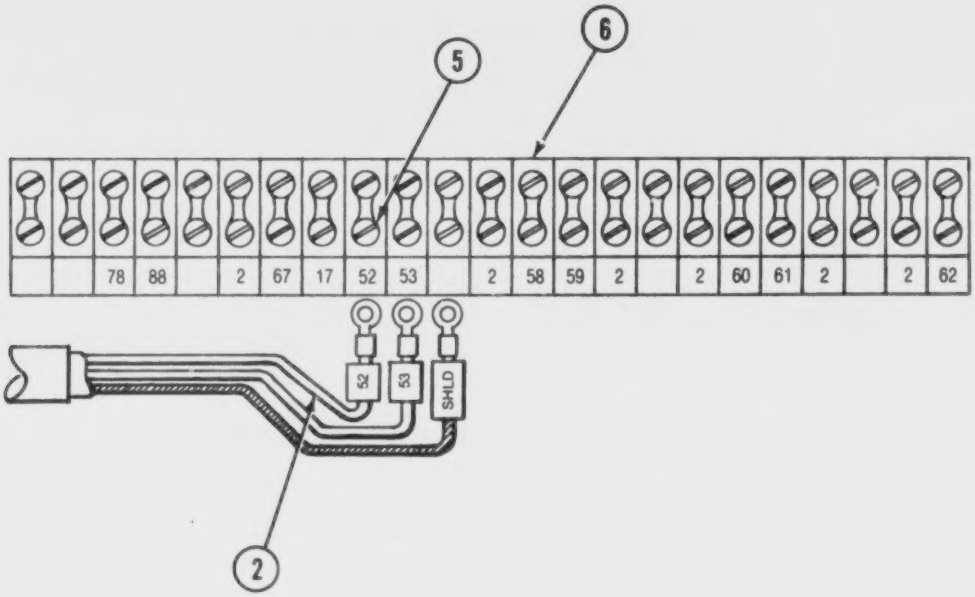
5. INSTALL LEADS ON TERMINAL BOARD 1TB.
   - Install lead (2) and screw (5) on 1TB (6). Use 1/4 inch flat tip screwdriver.
   - Repeat above installation step for other leads.



M. LAUNCHER HOOKUP CABLE ASSEMBLY J9 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

GO TO NEXT PAGE

M. LAUNCHER HOOKUP CABLE ASSEMBLY J9 REMOVAL — Continued

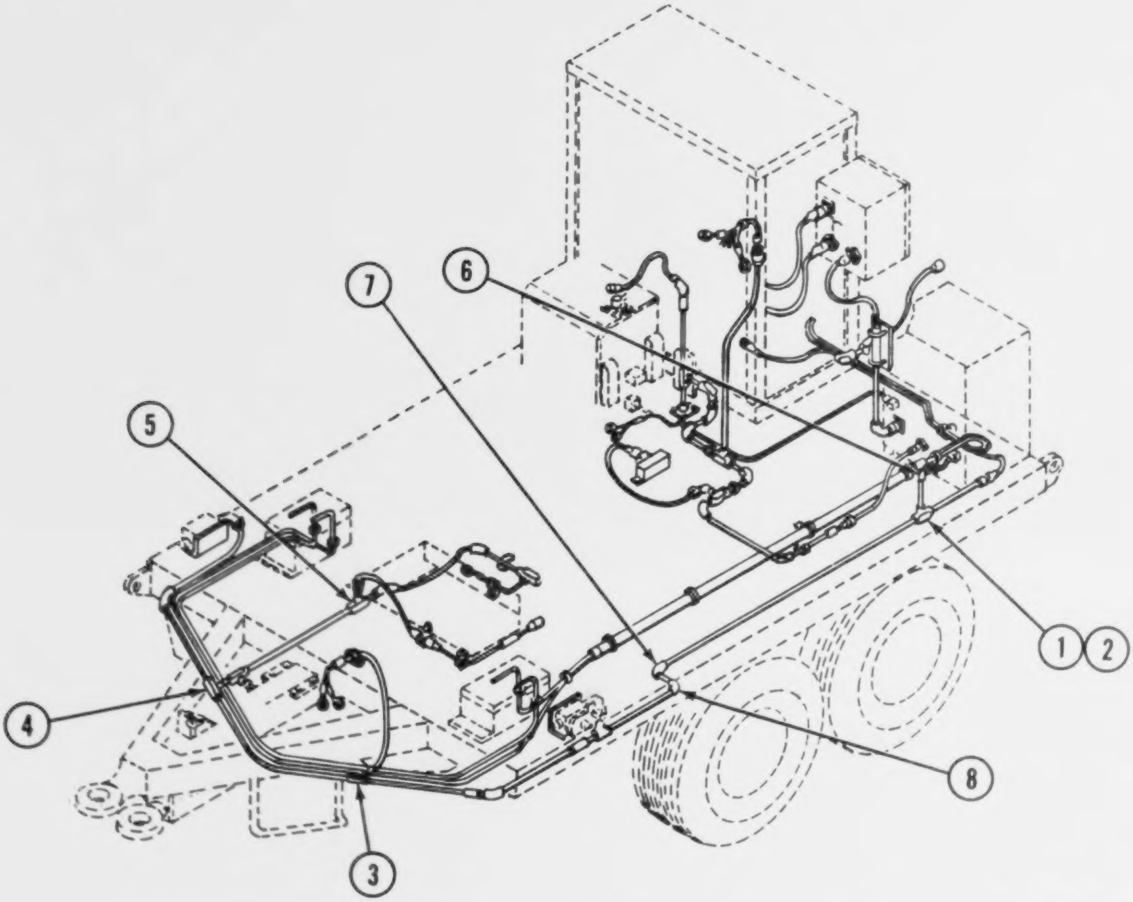
1. REMOVE LAUNCHER HOOKUP CABLE ASSEMBLY J9 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY J9 WIRE DESTINATION LIST.)

CABLE ASSEMBLY J9 WIRE DESTINATION LIST

From Connector J9 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
R	54	6
P	96	6
c	2	6
N	17	6
M	104	6
b	2	6
K	103	6
L	17	6
a	2	6
j*	2	6
g*	2	6
J	54	6
H	101	6
Y	2	6
G	54	6
F	102	6
X	2	6
W	2	3
E	54	4
D	88	3
h	2	Open
i	2	6
F	102	5
k	83	5
c	2	5
U	77	Open
V	76	5
d	17	1
S	52	3
T	53	3
A*	2	3
B	105	6
C	54	4
f	84	5
e	77	5
z	2	5

* Shield (SHLD)

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), (4), AND (5) AND FROM CONDUIT PULLING ELBOWS (6), (7), AND (8). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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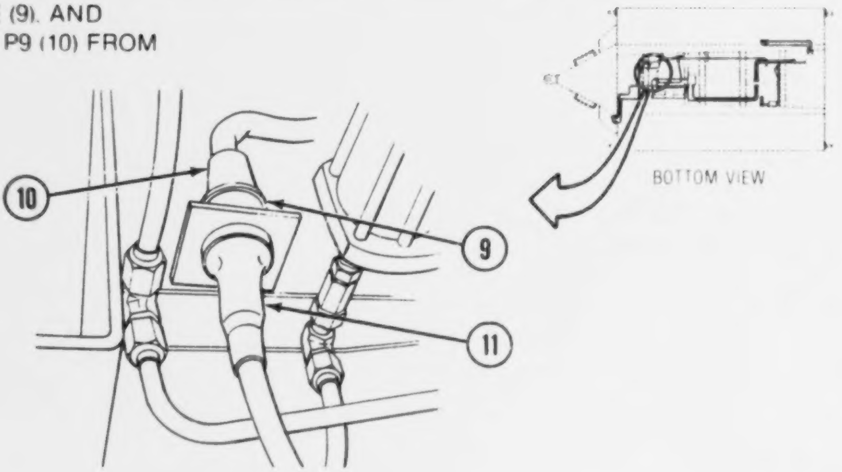
3. TURN CONNECTOR SLEEVE (9), AND DISCONNECT CONNECTOR P9 (10) FROM RECEPTACLE J9 (11).



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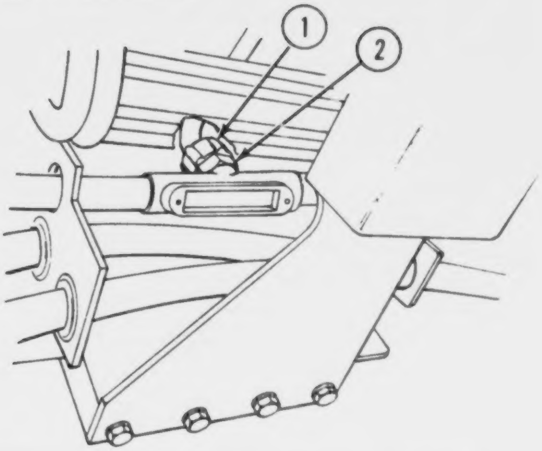
M. LAUNCHER HOOKUP CABLE ASSEMBLY J9 REMOVAL — Continued

4. REMOVE CONNECTOR HUB (1) FROM CONNECTOR BODY (2). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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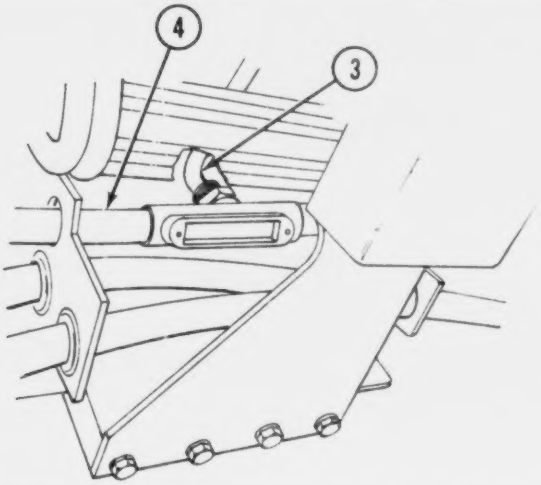
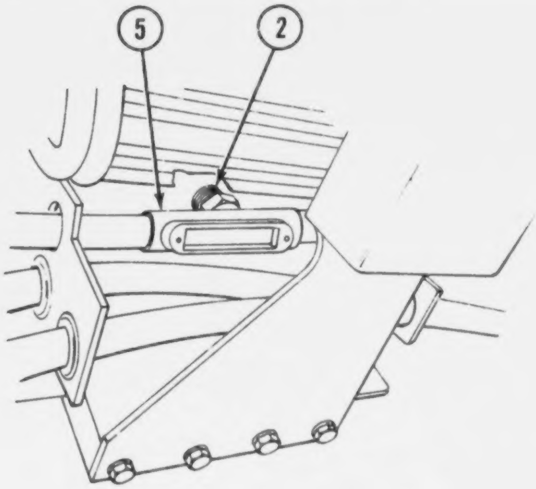
5. REMOVE LAUNCHER HOOKUP CABLE ASSEMBLY J9 (3) FROM CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

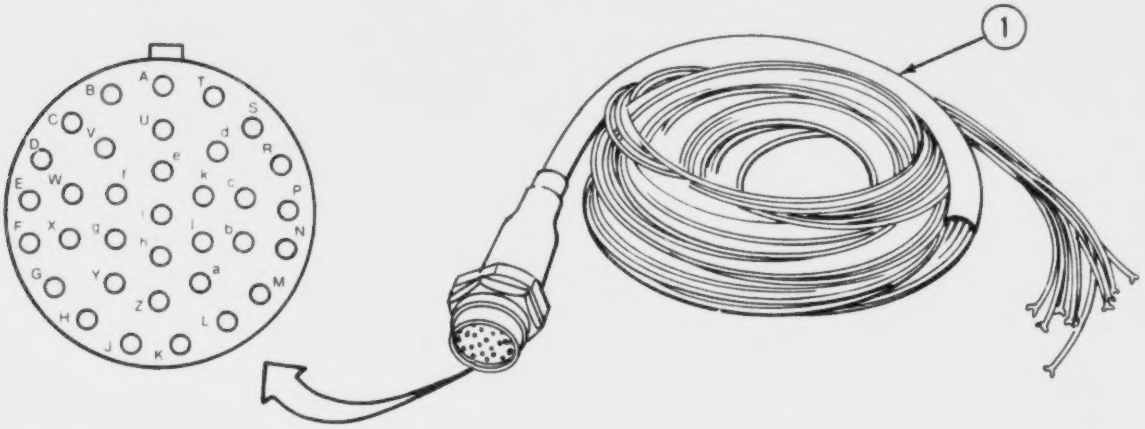
Do not remove connector body unless required for maintenance.

6. REMOVE CONNECTOR BODY (2) FROM CONDUIT TEE (5). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



N. LAUNCHER HOOKUP CABLE ASSEMBLY J9 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK OF LAUNCHER HOOKUP CABLE ASSEMBLY J9 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY J9 WIRING DIAGRAM.)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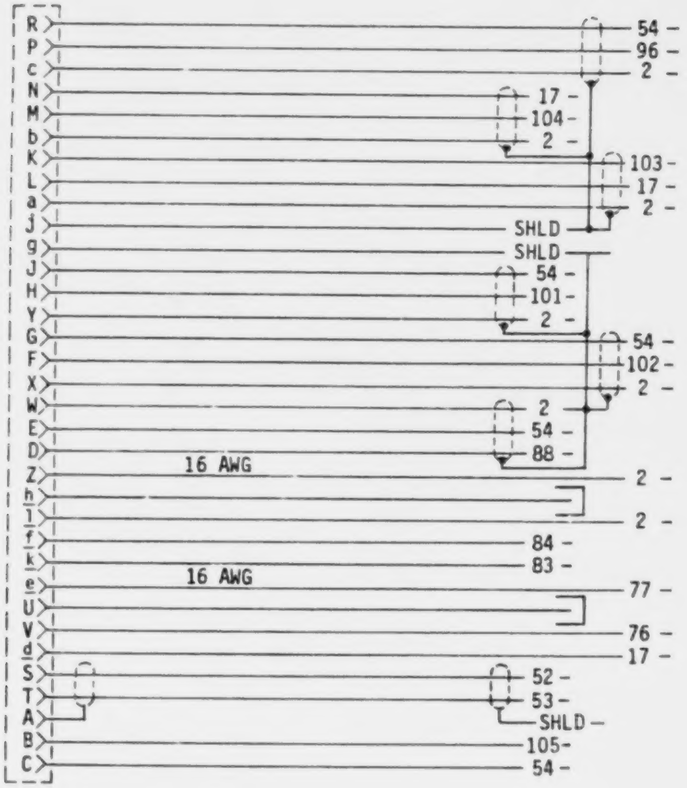
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M 104 -
b 2 -
K 103 -
L 17 -
a 2 -
j SHLD
g SHLD
J 54 -
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Y 2 -
G 54 -
F 102 -
X 2 -
W 2
E 54 -
D 88 -
Z 16 AWG 2 -
h
i 2 -
f 84 -
k 83 -
e 16 AWG 77 -
U
V 76 -
d 17 -
S 52 -
T 53 -
A SHLD -
B 105 -
C 54 -

Cable Assembly J9 Wiring Diagram

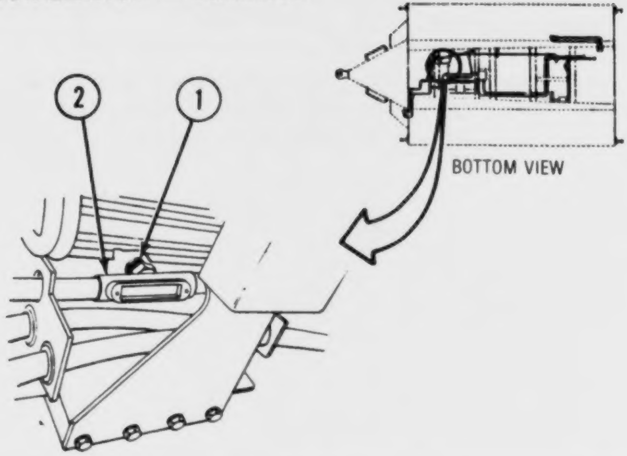
GO TO NEXT PAGE

N. LAUNCHER HOOKUP CABLE ASSEMBLY J9 INSTALLATION — Continued

NOTE

If connector body was not removed from conduit tee, go to step 3.

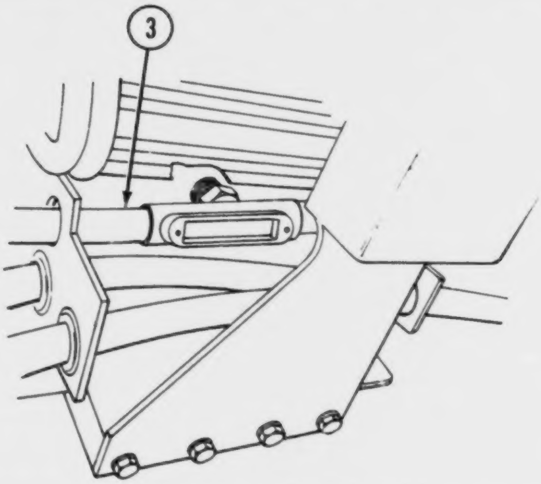
2. INSTALL NEW CONNECTOR BODY (1) ON CONDUIT TEE (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (3). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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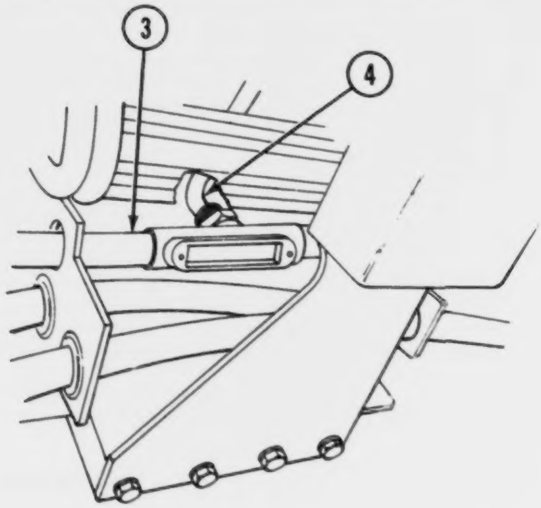
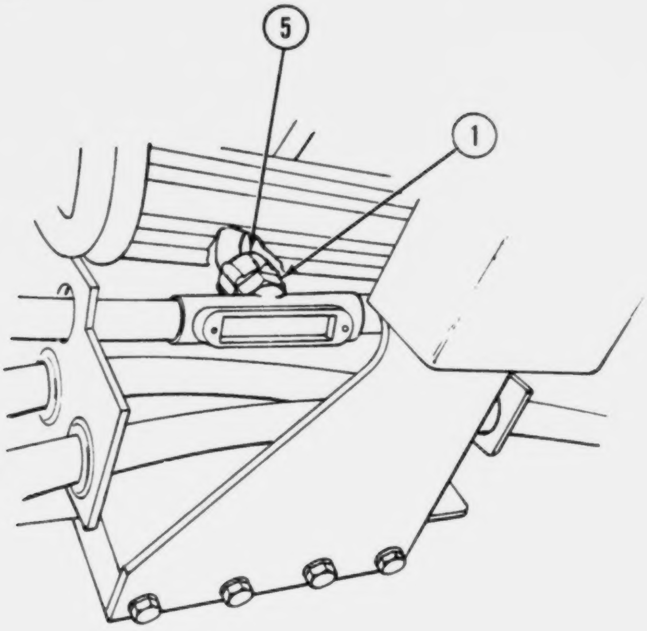
4. INSTALL LAUNCHER HOOKUP CABLE ASSEMBLY J9 (4) IN CONDUIT (3). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



5. INSTALL CONNECTOR HUB (5) ON CONNECTOR BODY (1). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



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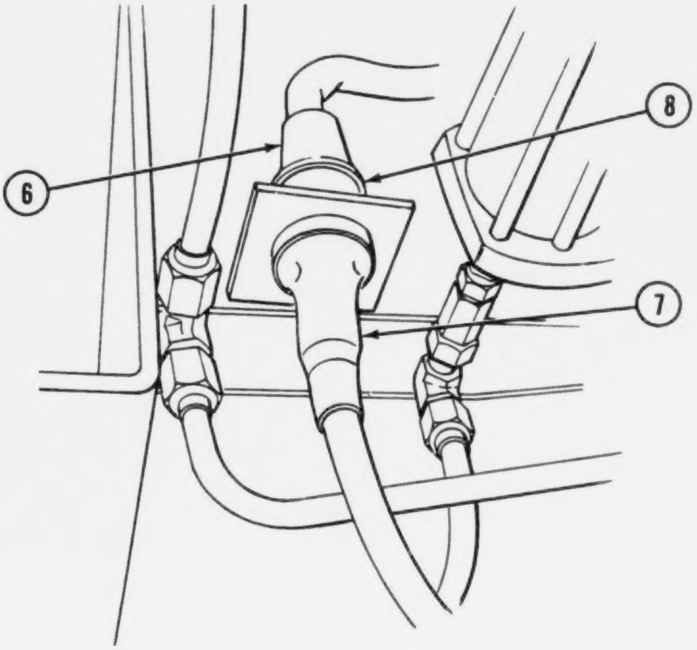
6. CONNECT CONNECTOR P9 (6) TO RECEPTACLE J9 (7), AND TURN CONNECTOR SLEEVE (8).



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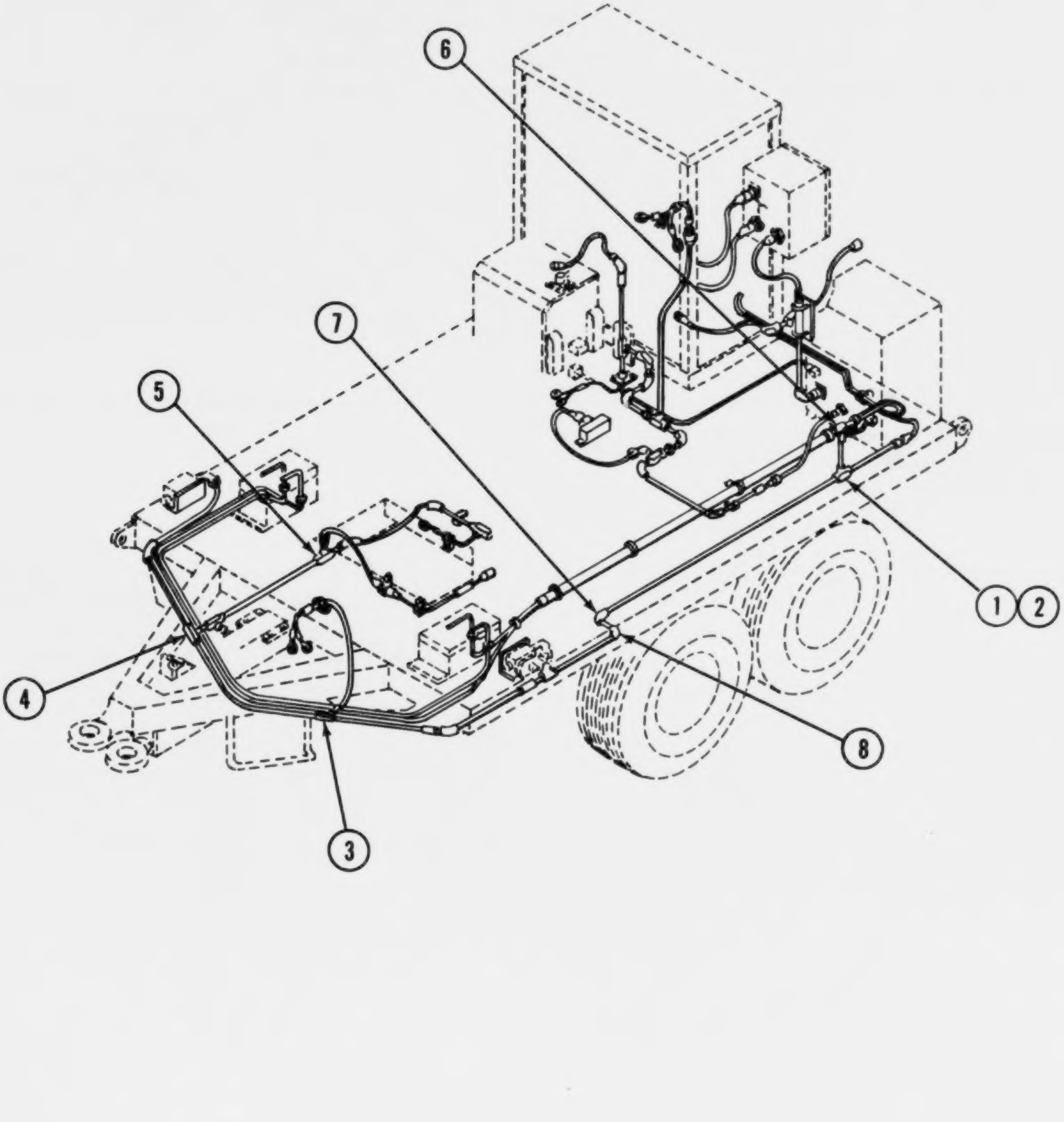
N. LAUNCHER HOOKUP CABLE ASSEMBLY J9 INSTALLATION — Continued

7. INSTALL CONDUIT FITTING COVERS (1) ON CONDUIT TEES (2), (3), (4), AND (5) AND ON CONDUIT PULLING ELBOWS (6), (7), AND (8). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



8. INSTALL LAUNCHER HOOKUP CABLE ASSEMBLY J9 LEADS ON TERMINAL BOARD 1TB. (SEE CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY J9 WIRE DESTINATION LIST.

CABLE ASSEMBLY J9 WIRE DESTINATION LIST

From Connector J9 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
R	54	6
P	96	6
c	2	6
N	17	6
M	104	6
b	2	6
K	103	6
L	17	6
a	2	6
j*	2	6
g*	2	6
J	54	6
H	101	6
Y	2	6
G	54	6
F	102	6
X	2	6
W	2	3
E	54	4
D	88	3
h	2	Open
l	2	6
F	102	5
k	83	5
c	2	5
U	77	Open
V	76	5
d	17	1
S	52	3
T	53	3
A*	2	3
B	105	6
C	54	4
f	84	5
e	77	5
z	2	5

* Shield (SHLD)

GO TO NEXT PAGE

N. LAUNCHER HOOKUP CABLE ASSEMBLY J9 INSTALLATION — Continued

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

O. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

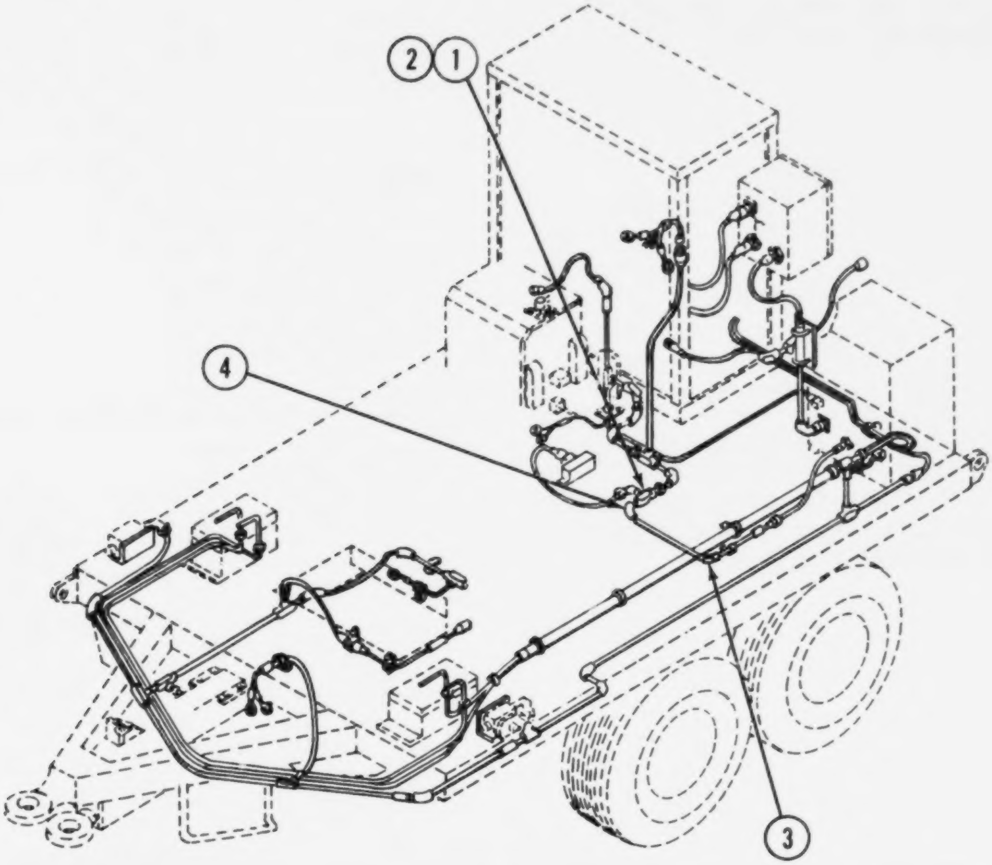
1. REMOVE VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY P11 WIRE DESTINATION LIST.)

CABLE ASSEMBLY P11 WIRE DESTINATION LIST

From Connector P11 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
F	Open	Open
E	Open	Open
C	Open	Open
D	67	3
B	17	3
A	2	3
*	2	3

* Shield (SHLD)

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND FROM CONDUIT PULLING ELBOWS (3) AND (4). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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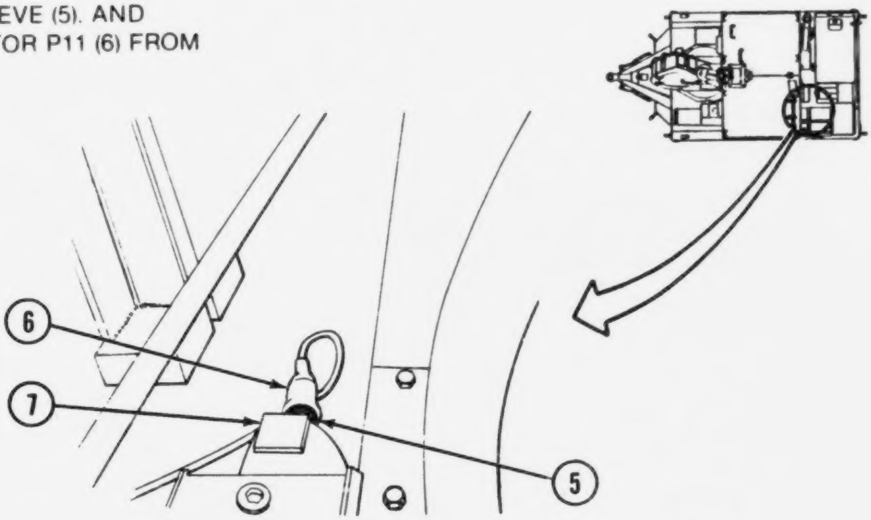
3. TURN CONNECTOR SLEEVE (5), AND DISCONNECT CONNECTOR P11 (6) FROM RECEPTACLE J11 (7).



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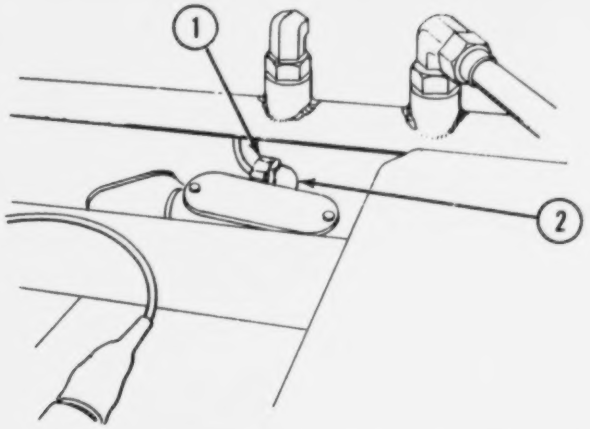
O. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 REMOVAL — Continued

4. REMOVE CONNECTOR HUB (1) FROM 90° ELBOW (2). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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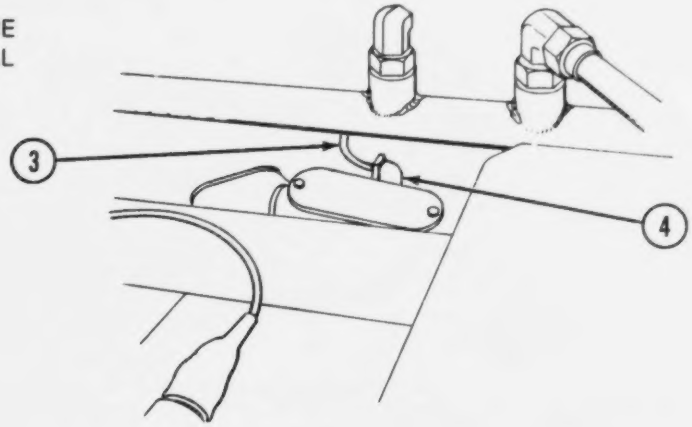
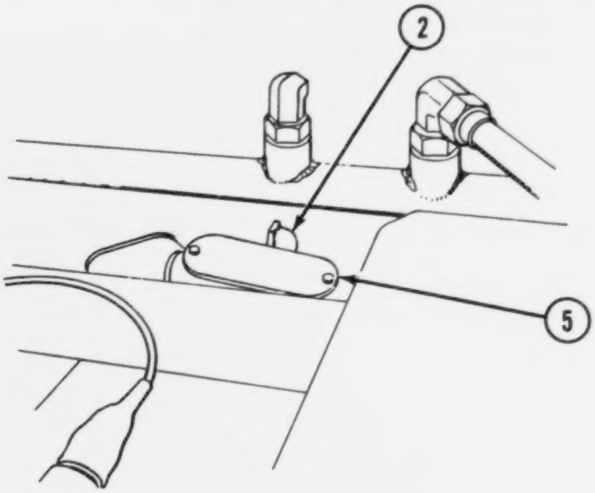
5. REMOVE VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 (3) FROM CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

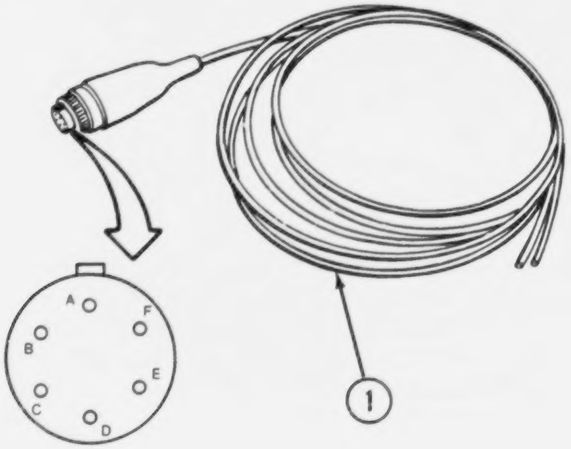
Do not remove 90° elbow unless required for maintenance.

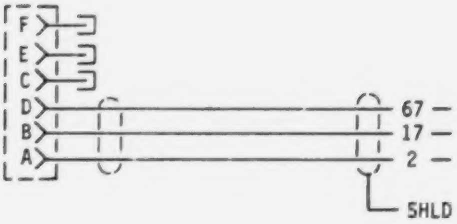
6. REMOVE 90° ELBOW (2) FROM CONDUIT TEE (5). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



P. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P11 WIRING DIAGRAM.



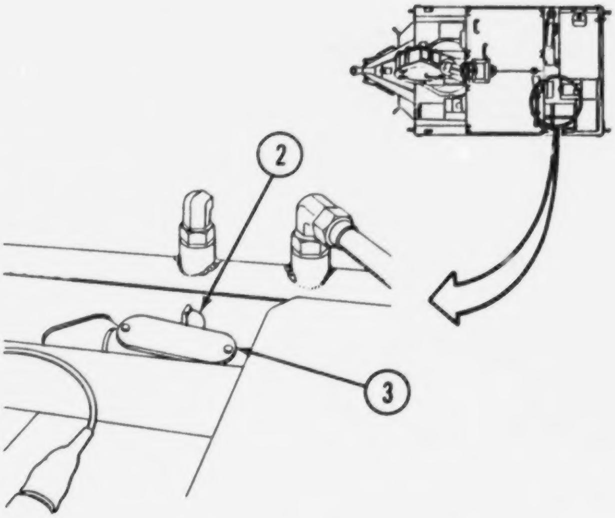


Cable Assembly P11 Wiring Diagram

NOTE

If 90° elbow was not removed from conduit tee, go to step 3.

2. INSTALL NEW 90° ELBOW (2) ON CONDUIT TEE (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.



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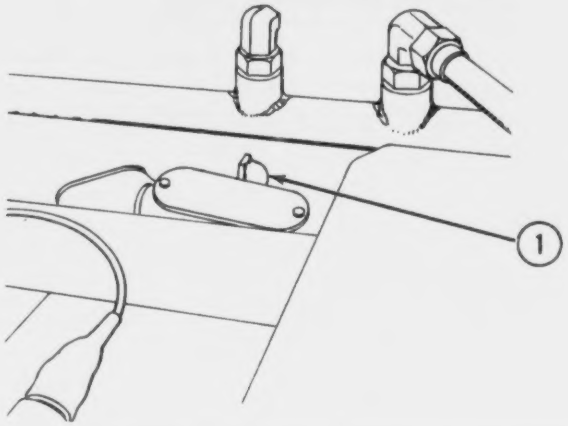
P. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 INSTALLATION — Continued

NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (1). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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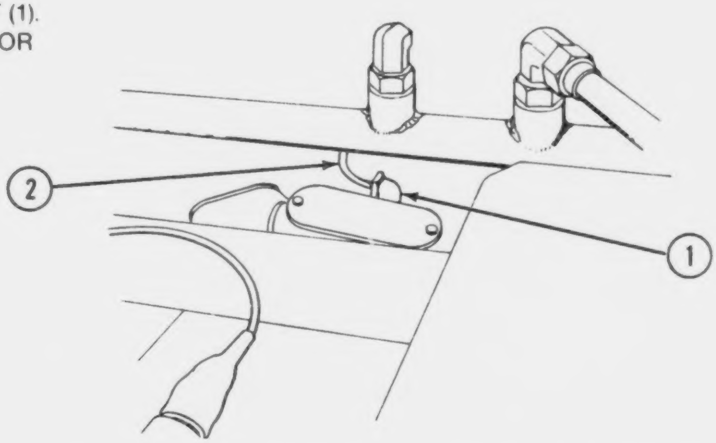
4. INSTALL VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 (2) IN CONDUIT (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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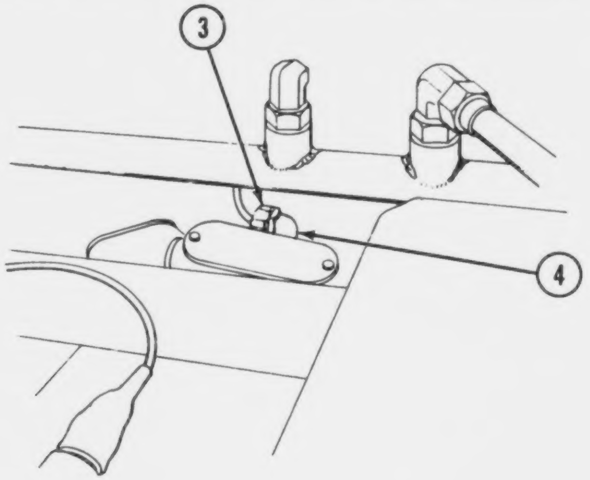
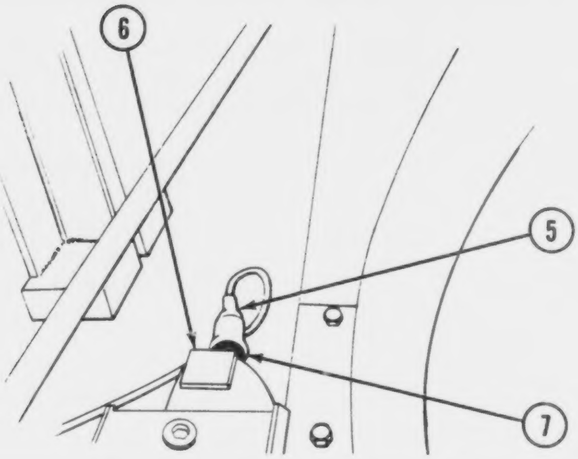
5. INSTALL CONNECTOR HUB (3) ON 90° ELBOW (4). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



6. CONNECT CONNECTOR P11 (5) TO RECEPTACLE J11 (6), AND TURN CONNECTOR SLEEVE (7).



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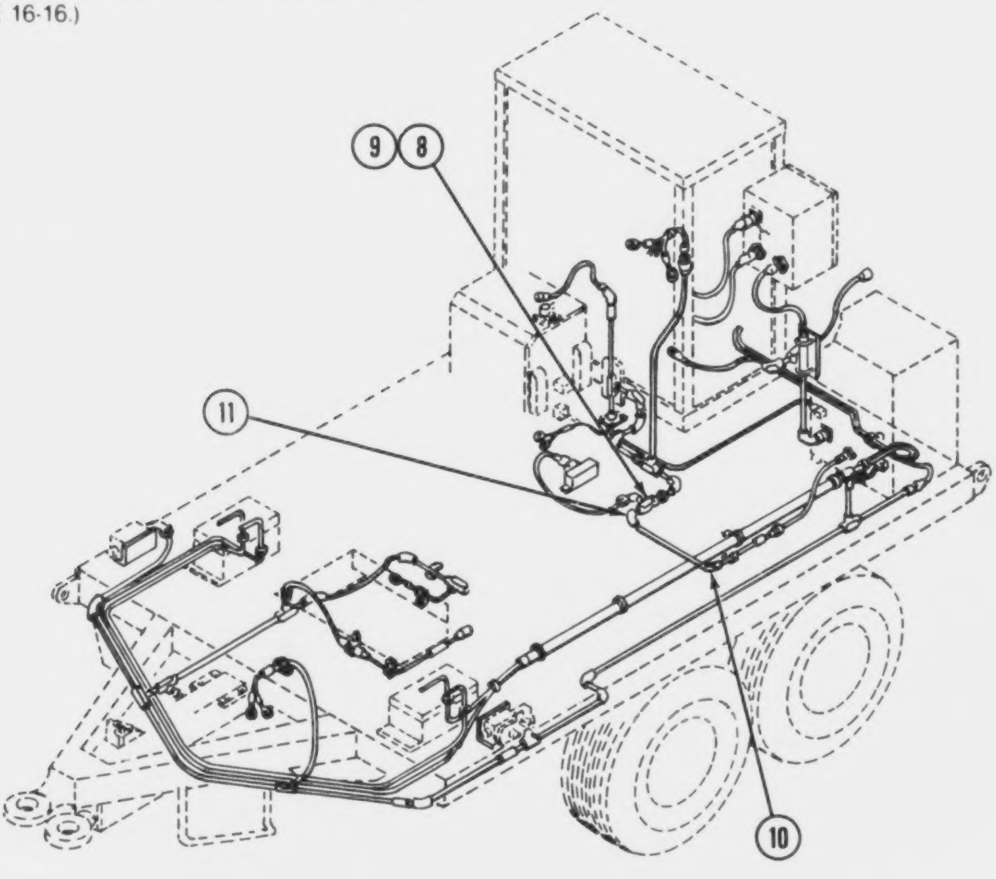
7. INSTALL CONDUIT FITTING COVERS (8) ON CONDUIT TEE (9) AND ON CONDUIT PULLING ELBOWS (10) AND (11). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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P. VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 INSTALLATION — Continued

8. INSTALL VEHICLE DISTANCE ENCODER CABLE ASSEMBLY P11 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P11 WIRE DESTINATION LIST.

CABLE ASSEMBLY P11 WIRE DESTINATION LIST

From Connector P11 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
F	Open	Open
E	Open	Open
C	Open	Open
D	67	3
B	17	3
A	2	3
*	2	3

* Shield (SHLD)

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

Q. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 REMOVAL

NOTE

PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY P31 WIRE DESTINATION LIST.)

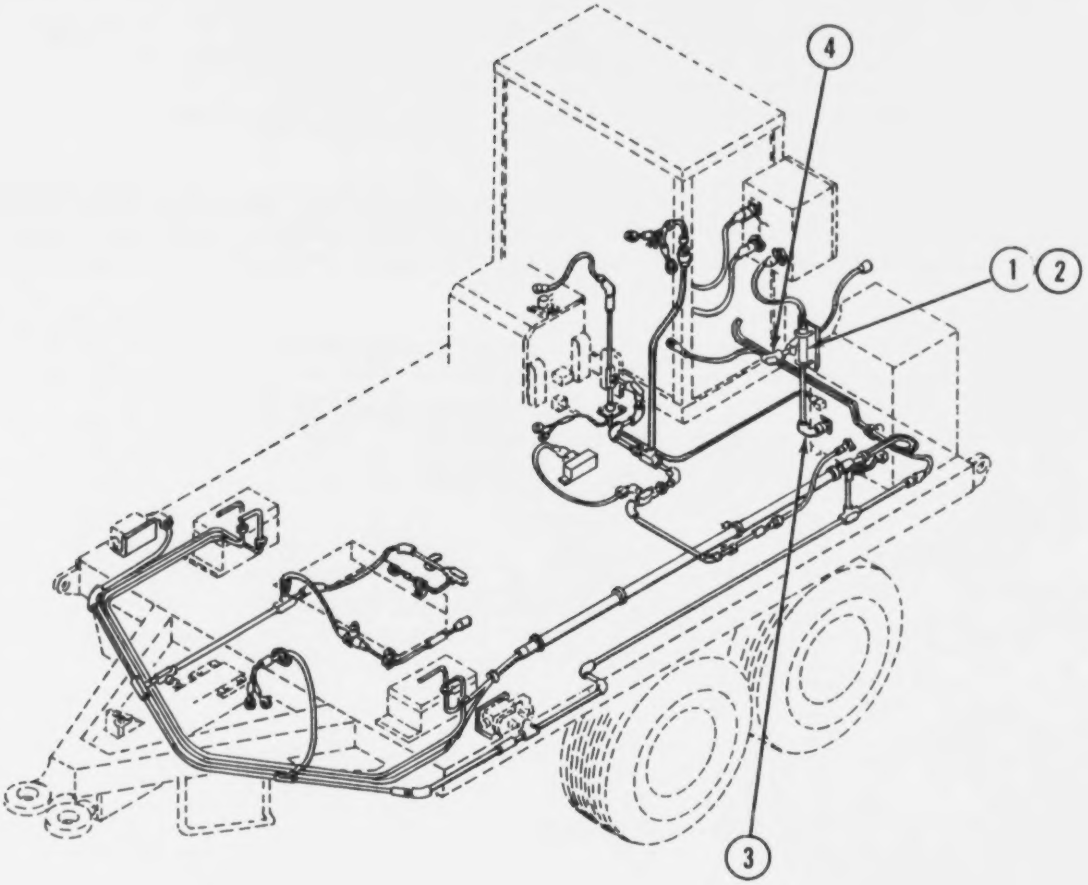
CABLE ASSEMBLY P31 WIRE DESTINATION LIST

From Connector P31 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	71	4
B	72	4
C	Open	Open

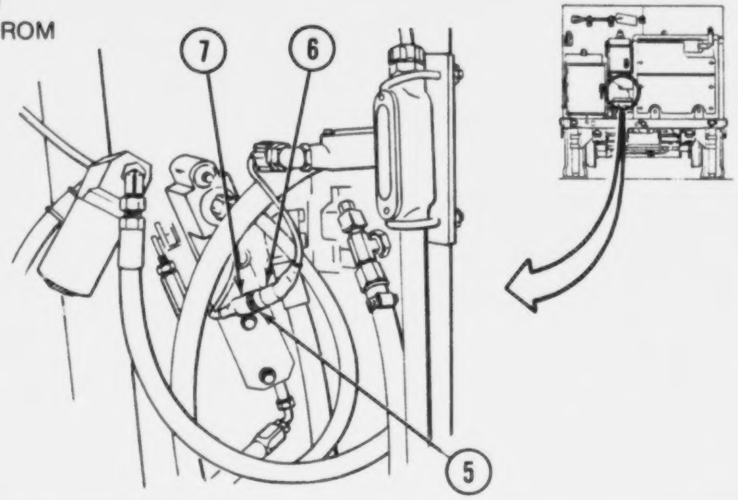
GO TO NEXT PAGE

Q. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 REMOVAL — Continued

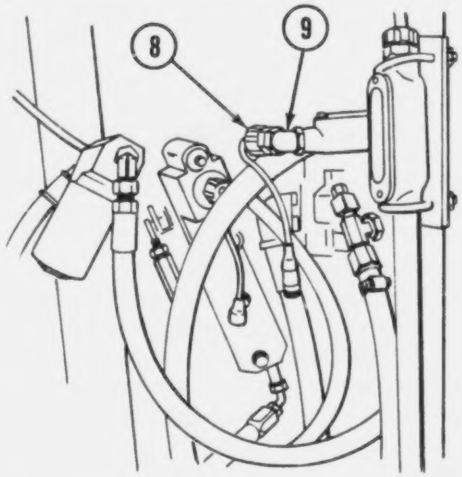
2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND FROM CONDUIT PULLING ELBOWS (3) AND (4). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



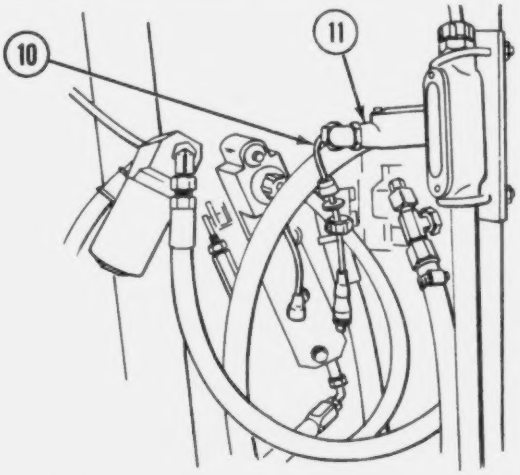
3. TURN CONNECTOR SLEEVE (5), AND DISCONNECT CONNECTOR P31 (6) FROM RECEPTACLE J31 (7).



4. REMOVE CONNECTOR HUB (8) FROM 90° ELBOW (9). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



5. REMOVE RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 (10) FROM CONDUIT (11). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



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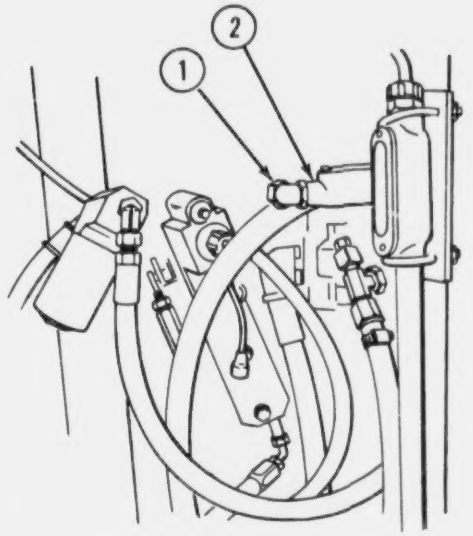
Q. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 REMOVAL — Continued

NOTE

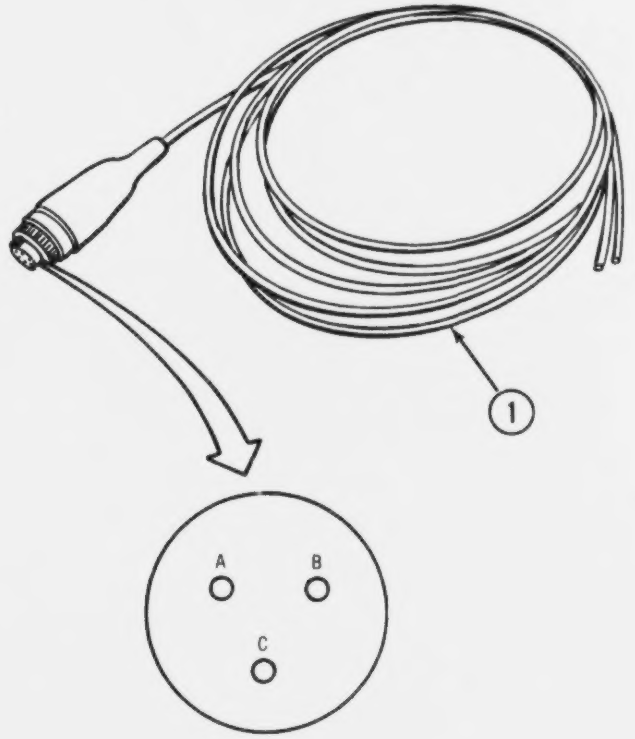
Do not remove 90° elbow unless required for maintenance.

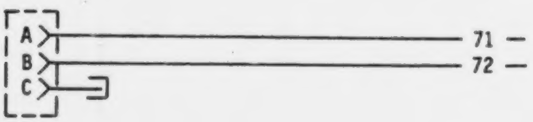
6. REMOVE 90° ELBOW (1) FROM CONDUIT TEE (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



R. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION and CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P31 WIRING DIAGRAM.)



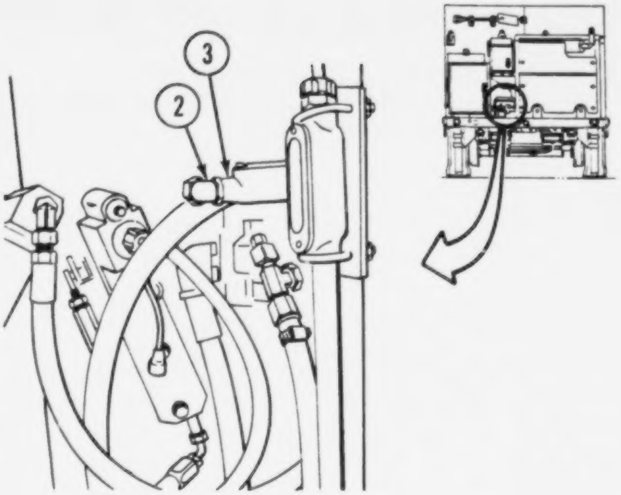


Cable Assembly P31 Wiring Diagram

NOTE

If 90° elbow was not removed from conduit tee, go to step 3.

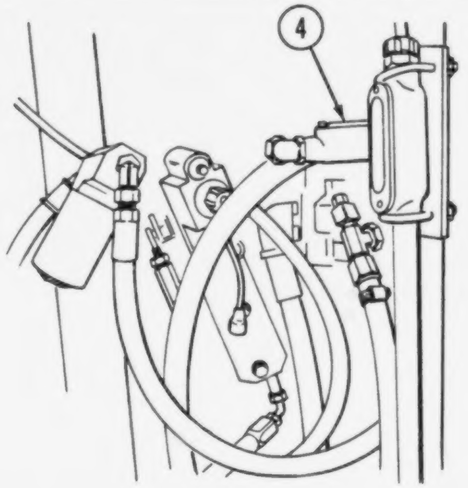
2. INSTALL NEW 90° ELBOW (2) ON CONDUIT TEE (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (4). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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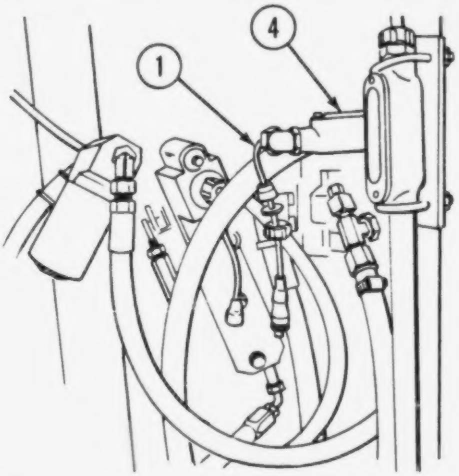
4. INSTALL RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 (1) IN CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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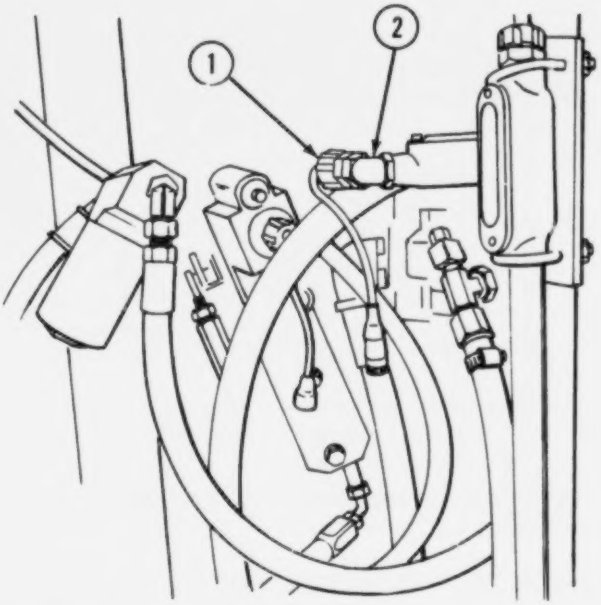
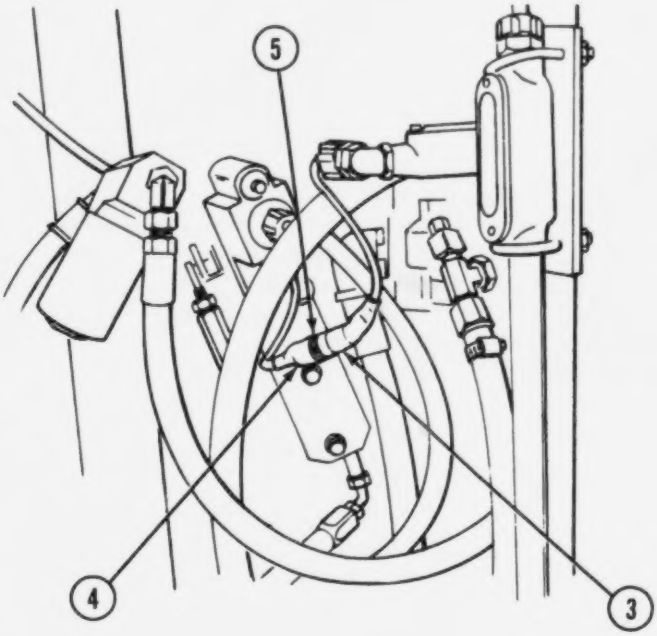
R. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 INSTALLATION — Continued

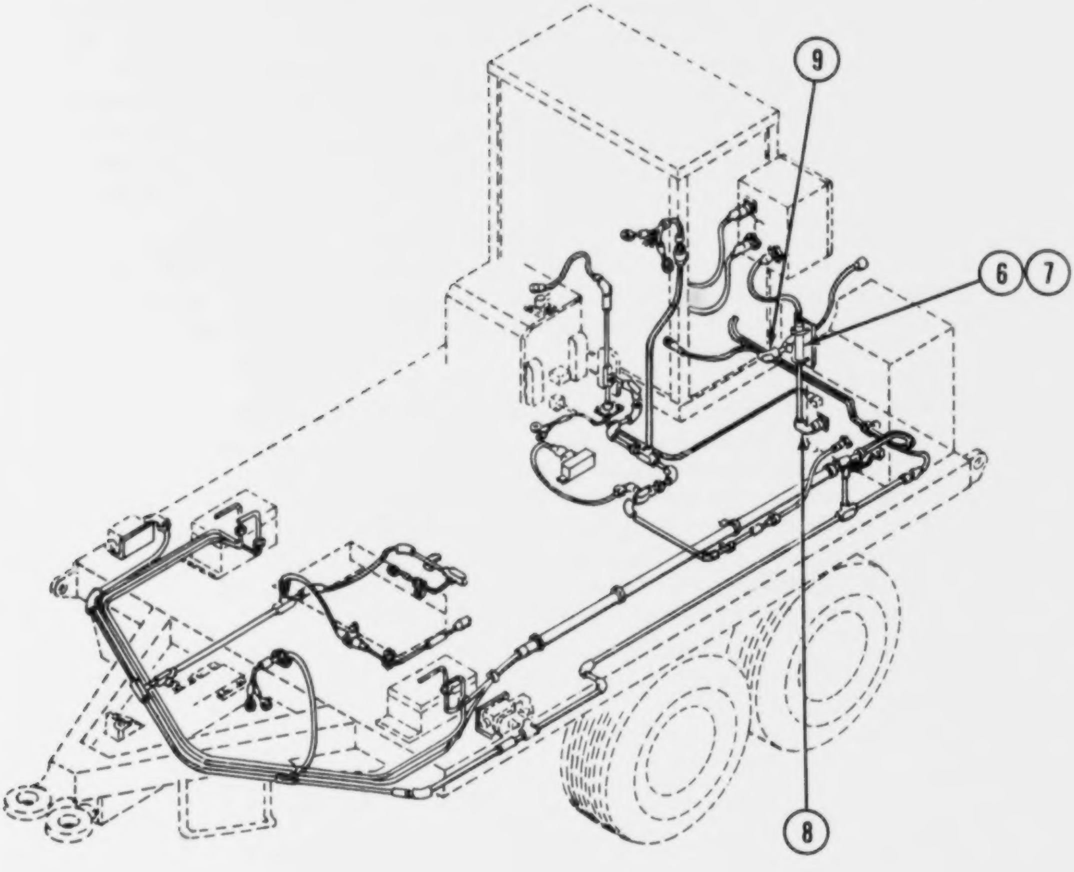
5. INSTALL CONNECTOR HUB (1) ON 90° ELBOW (2). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



6. CONNECT CONNECTOR P31 (3) TO RECEPTACLE J31 (4), AND TURN CONNECTOR SLEEVE (5).



7. INSTALL CONDUIT FITTING COVERS (6) ON CONDUIT TEE (7) AND ON CONDUIT PULLING ELBOWS (8) AND (9). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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R. RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 INSTALLATION — Continued

8. INSTALL RIGHT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P31 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P31 WIRE DESTINATION LIST.

CABLE ASSEMBLY P31 WIRE DESTINATION LIST

From Connector P31 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	71	4
B	72	4
C	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

S. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY P32 WIRE DESTINATION LIST.)

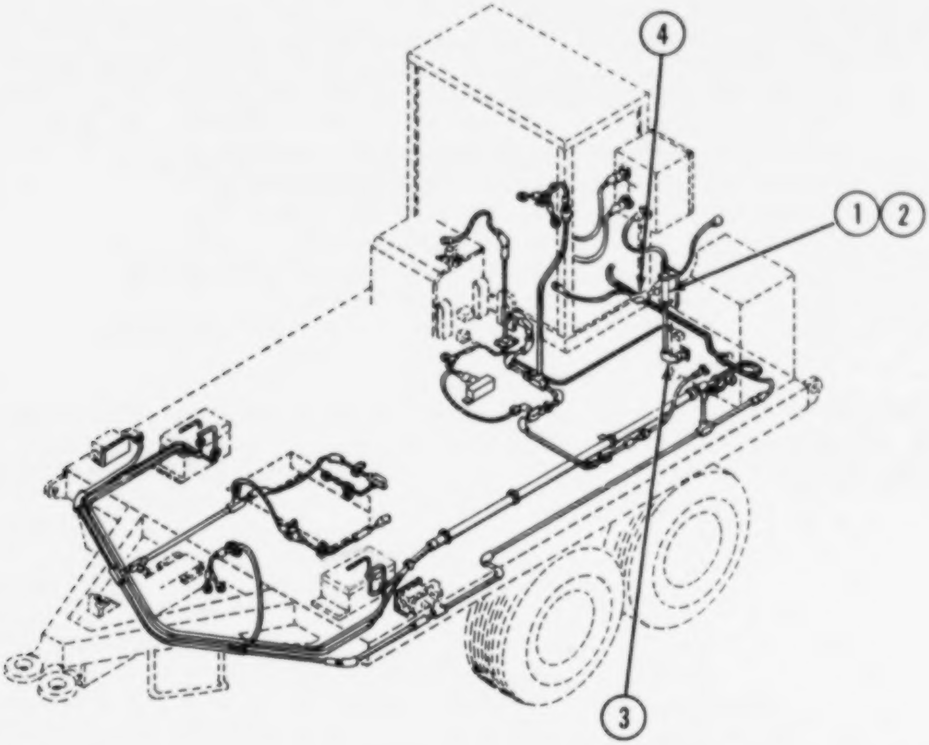
CABLE ASSEMBLY P32 WIRE DESTINATION LIST

From Connector P32 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	69	4
B	70	4
C	Open	Open

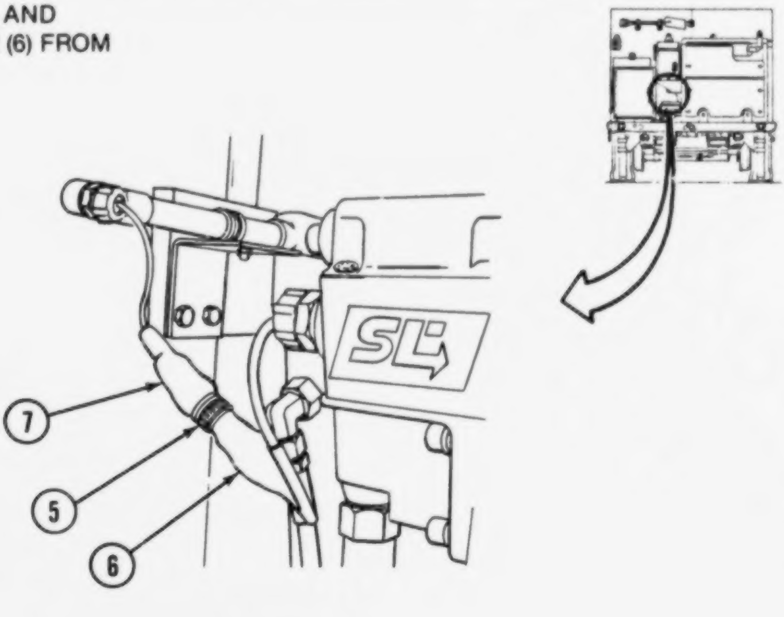
GO TO NEXT PAGE

S. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 REMOVAL — Continued

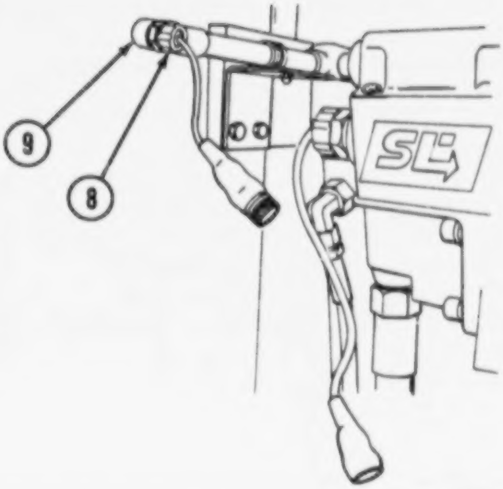
2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND FROM CONDUIT PULLING ELBOWS (3) AND (4). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



3. TURN CONNECTOR SLEEVE (5), AND DISCONNECT CONNECTOR P32 (6) FROM RECEPTACLE J32 (7).



4. REMOVE CONNECTOR HUB (8) FROM CONNECTOR BODY (9). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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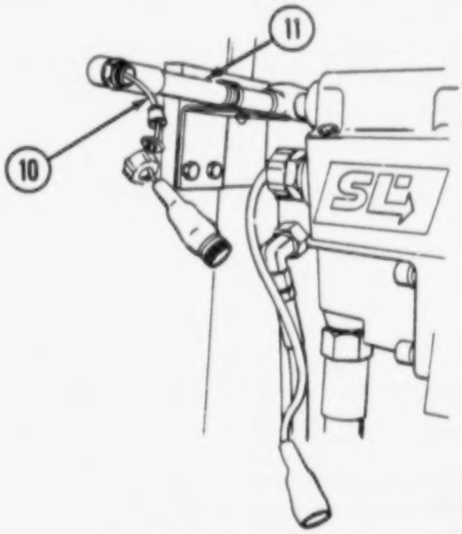
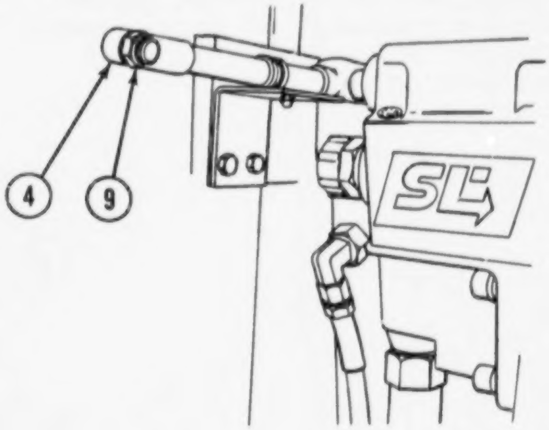
5. REMOVE LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 (10) FROM CONDUIT (11). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

Do not remove connector body unless required for maintenance.

6. REMOVE CONNECTOR BODY (9) FROM CONDUIT PULLING ELBOW (4). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



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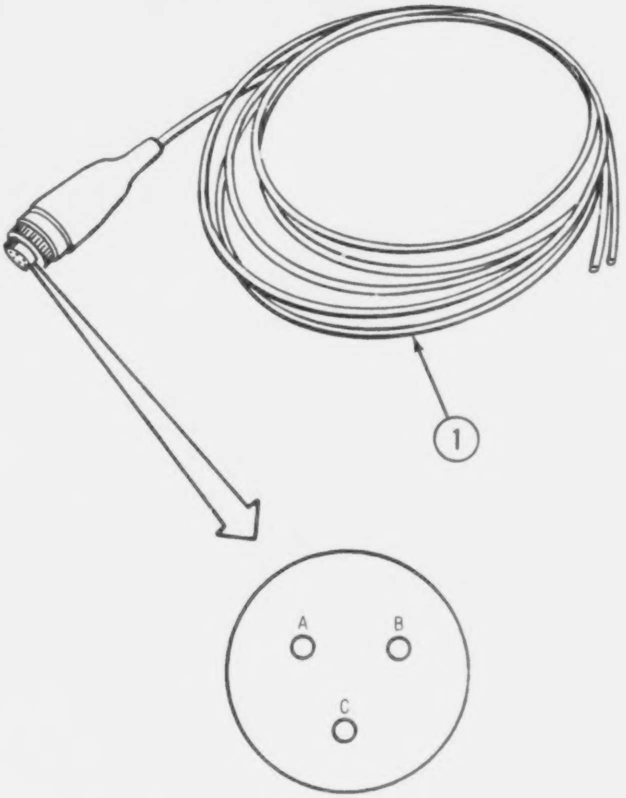
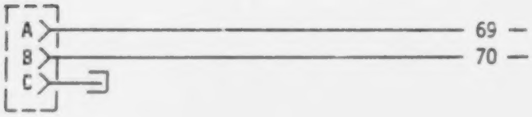
16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

T. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P32 WIRING DIAGRAM.)



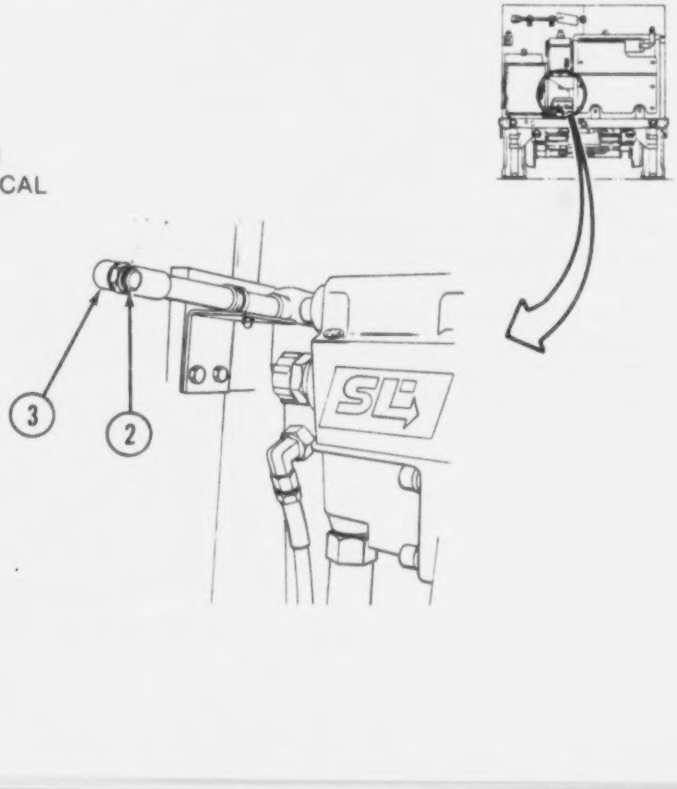


Cable Assembly P32 Wiring Diagram

NOTE

If connector body was not removed from conduit pulling elbow, go to step 3.

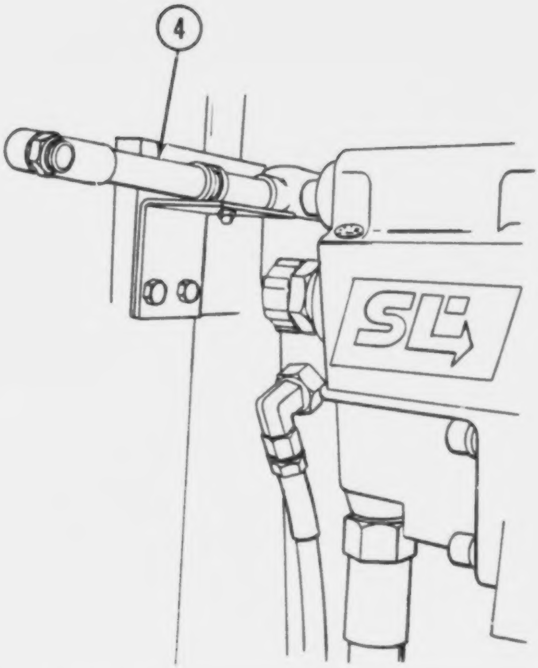
2. INSTALL NEW CONNECTOR BODY (2) ON CONDUIT PULLING ELBOW (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (4). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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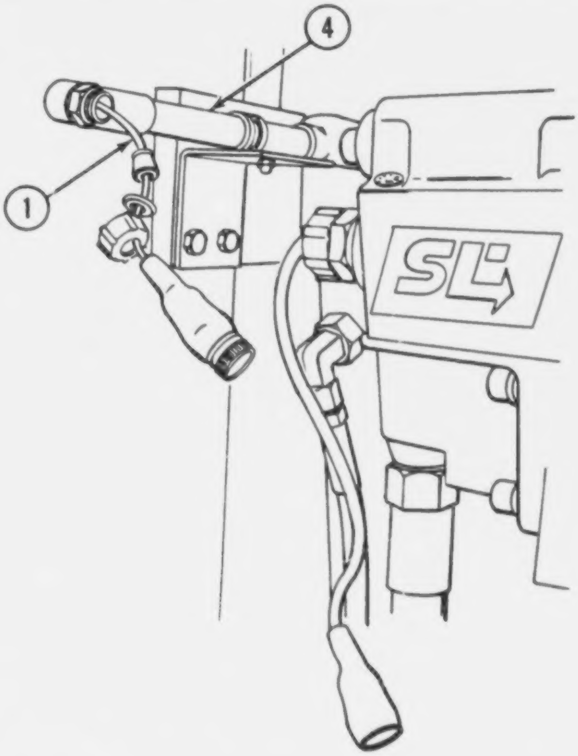
4. INSTALL LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 (1) IN CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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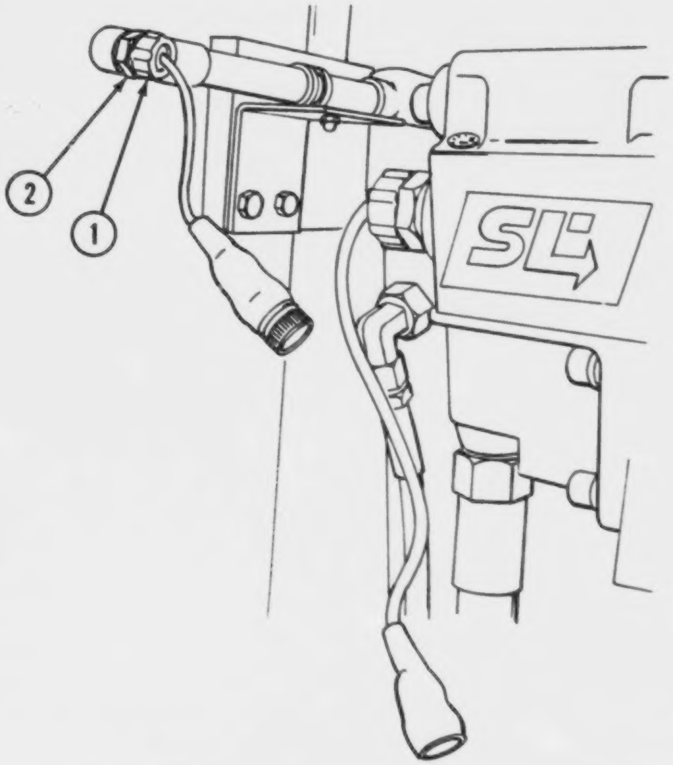
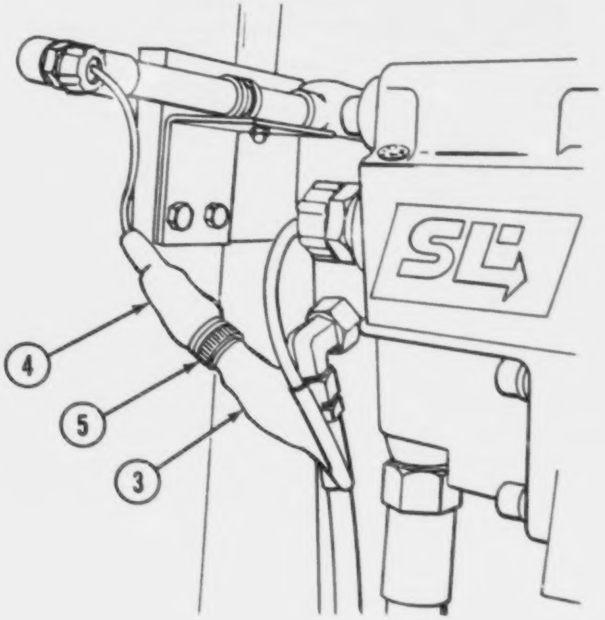
T. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 INSTALLATION — Continued

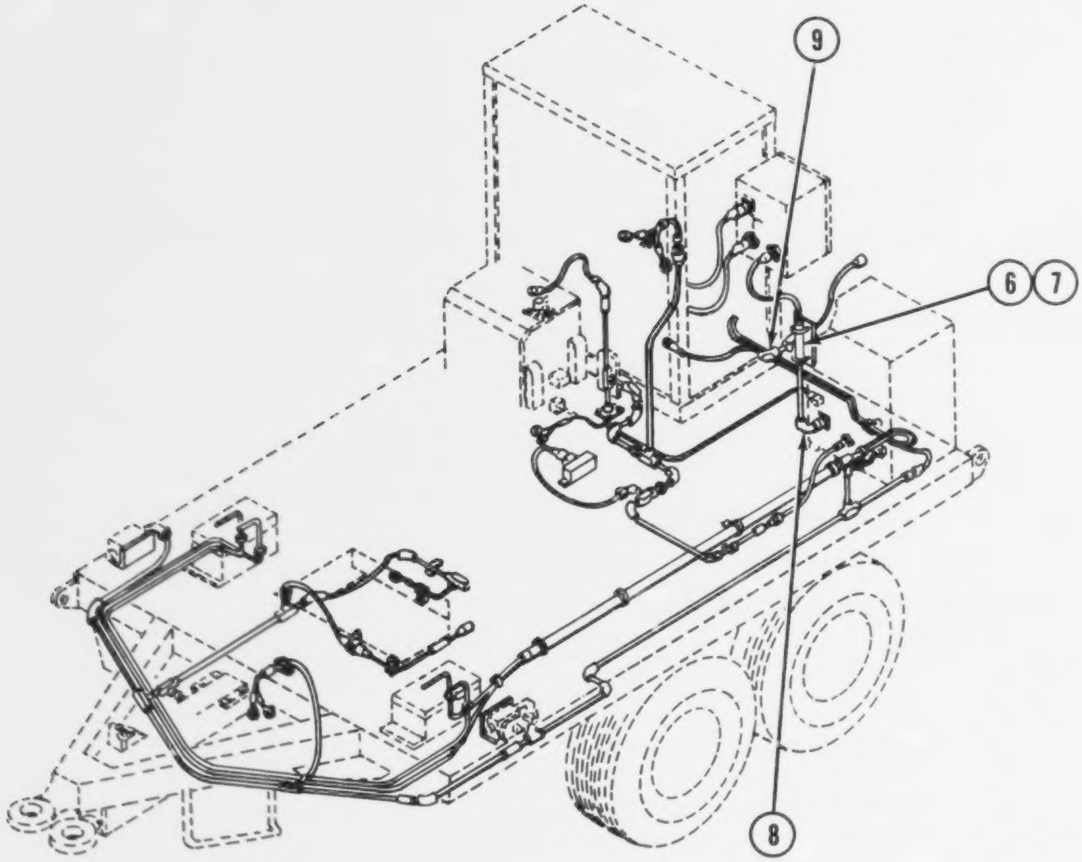
5. INSTALL CONNECTOR HUB (1) ON CONNECTOR BODY (2). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



6. CONNECT CONNECTOR P32 (3) TO RECEPTACLE J32 (4), AND TURN CONNECTOR SLEEVE (5).



7. INSTALL CONDUIT FITTING COVERS (6) ON CONDUIT TEE (7) AND ON CONDUIT ELBOWS (8) AND (9). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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T. LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 INSTALLATION — Continued

8. INSTALL LEFT MAGAZINE SERVO ACTUATOR CABLE ASSEMBLY P32 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P32 WIRE DESTINATION LIST.)

CABLE ASSEMBLY P32 WIRE DESTINATION LIST

From Connector P32 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	69	4
B	70	4
C	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

U. MAIN CONTROL PANEL CABLE ASSEMBLY P35 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE MAIN CONTROL PANEL CABLE ASSEMBLY P35 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY P35 WIRE DESTINATION LIST.)

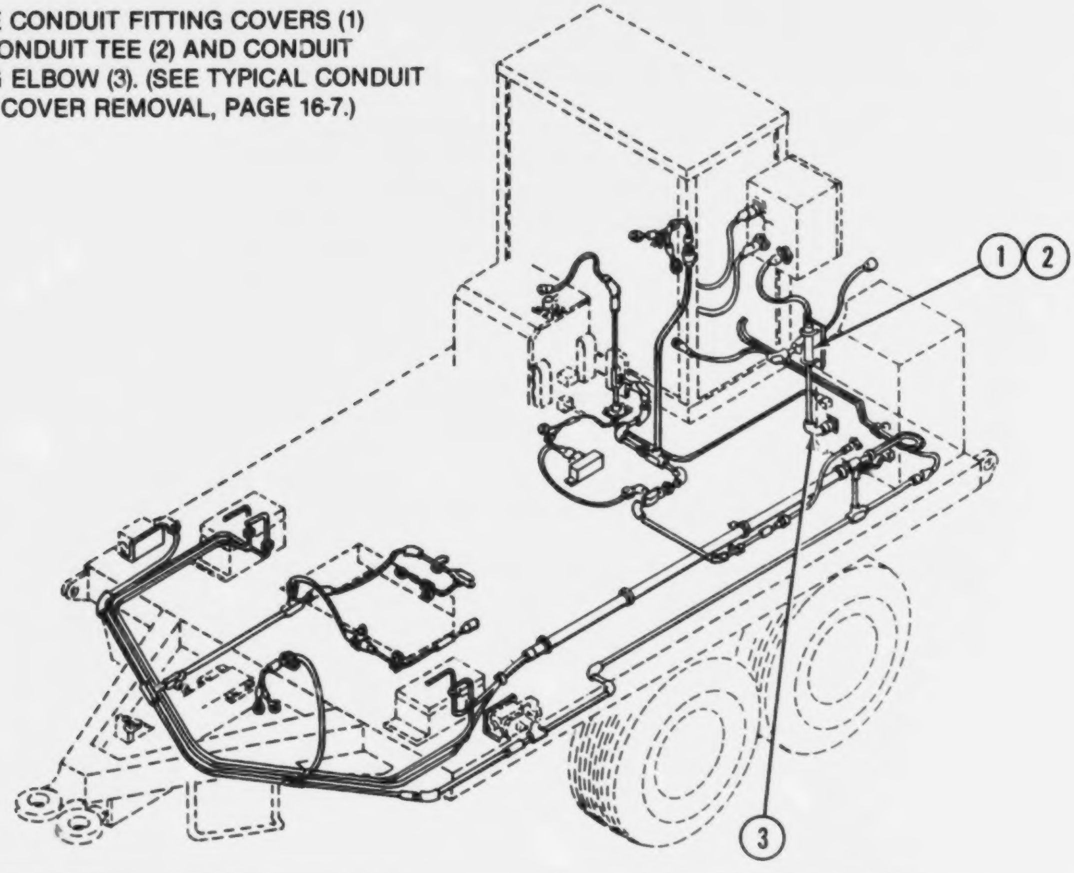
CABLE ASSEMBLY P35 WIRE DESTINATION LIST

From Connector P35 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	2	6
B	2	6
C	5	1
D	6	1
E	11	1
F	13	1
G	19	1
H	20	1
J	21	1
K	7	1
L	23	1
M	51	2
N	8	1
P	9	1
R	106	6
S	Open	Open

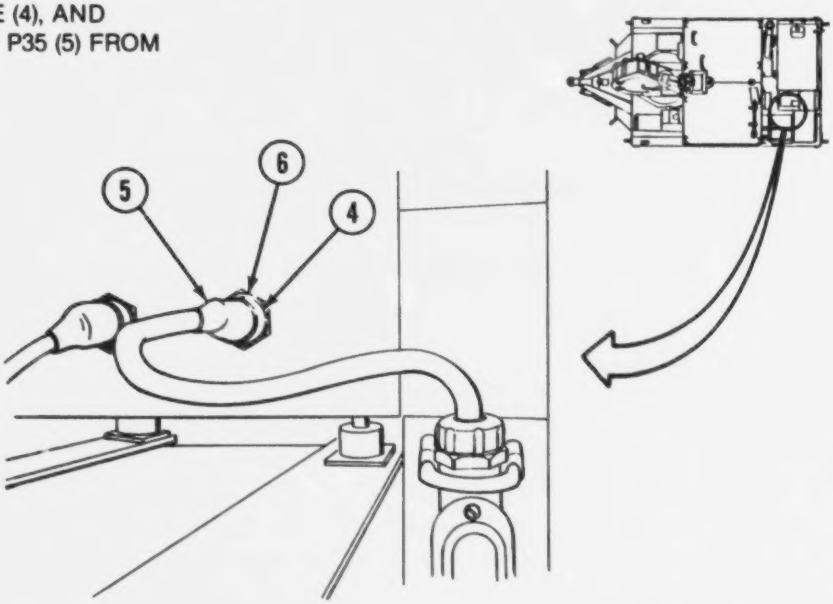
GO TO NEXT PAGE

U. MAIN CONTROL PANEL CABLE ASSEMBLY P35 REMOVAL — Continued

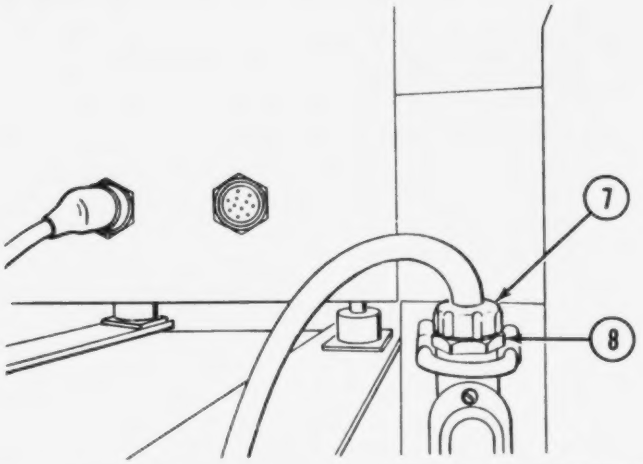
2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND CONDUIT PULLING ELBOW (3). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



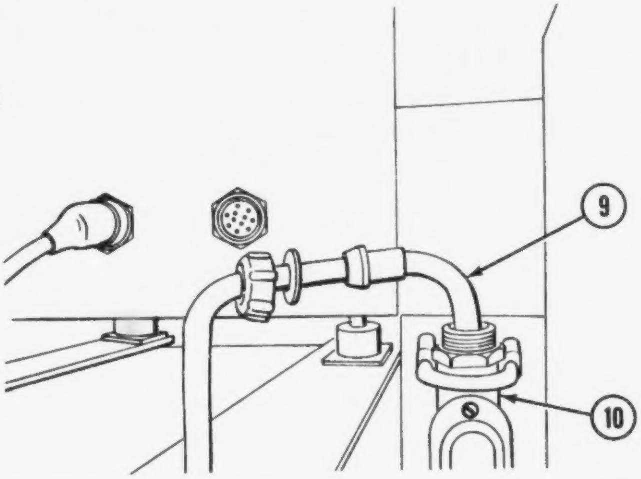
3. TURN CONNECTOR SLEEVE (4), AND DISCONNECT CONNECTOR P35 (5) FROM RECEPTACLE J35 (6).



4. REMOVE CONNECTOR HUB (7) FROM CONNECTOR BODY (8). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



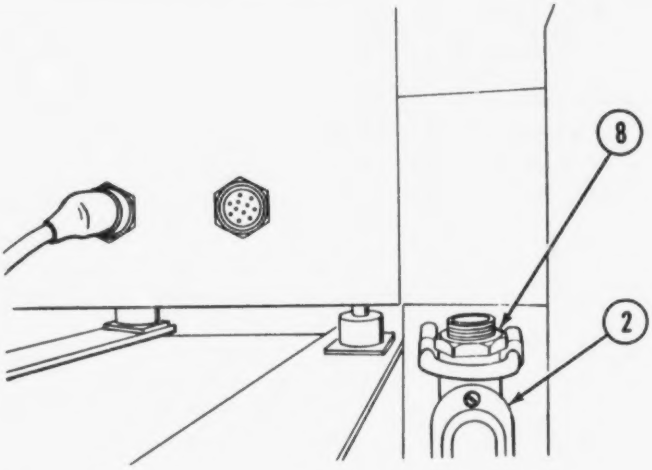
5. REMOVE MAIN CONTROL PANEL CABLE ASSEMBLY P35 (9) FROM CONDUIT (10). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

Do not remove connector body unless required for maintenance.

6. REMOVE CONNECTOR BODY (8) FROM CONDUIT TEE (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



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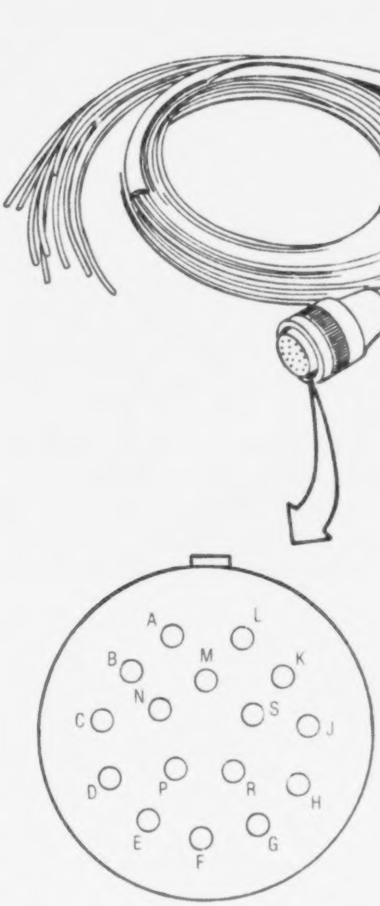
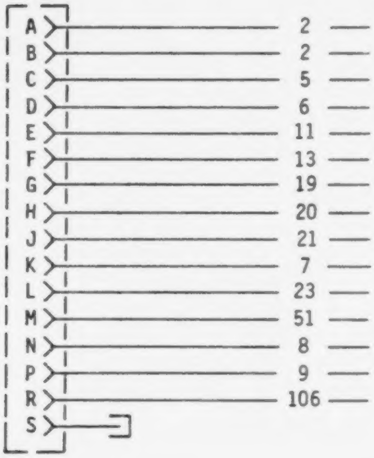
16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

V. MAIN CONTROL PANEL CABLE ASSEMBLY P35 INSTALLATION

1. PERFORM INDENTIFICATION AND CONTINUITY CHECK ON MAIN CONTROL PANEL CABLE ASSEMBLY P35 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P35 WIRING DIAGRAM.


1
A
L
M
B
K
N
C
S
J
D
P
R
H
E
F
G

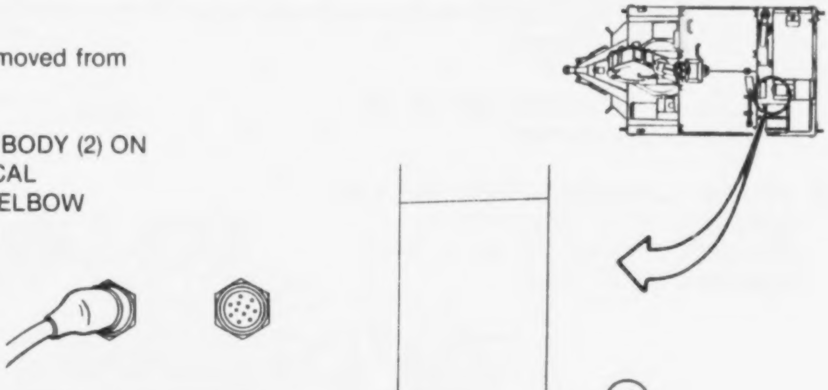

A 2
B 2
C 5
D 6
E 11
F 13
G 19
H 20
J 21
K 7
L 23
M 51
N 8
P 9
R 106
S

Cable Assembly P35 Wiring Diagram

NOTE

If connector body was not removed from conduit tee, go to step 3.

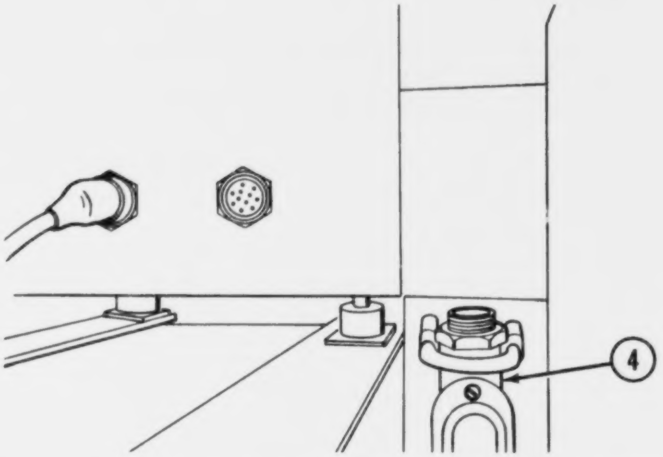
2. INSTALL NEW CONNECTOR BODY (2) ON CONDUIT TEE (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (4). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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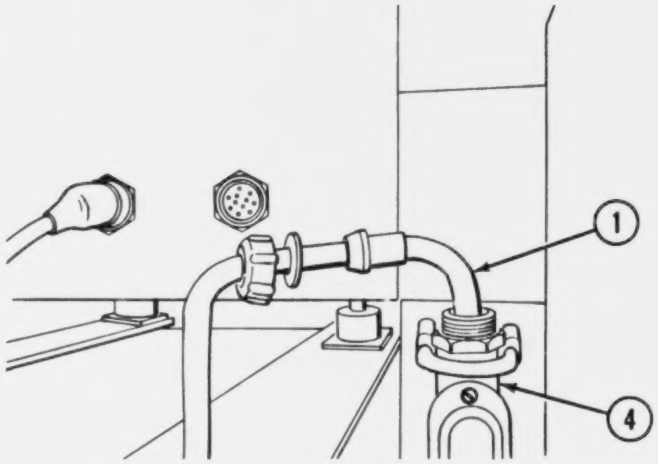
4. INSTALL MAIN CONTROL PANEL CABLE ASSEMBLY P35 (1) IN CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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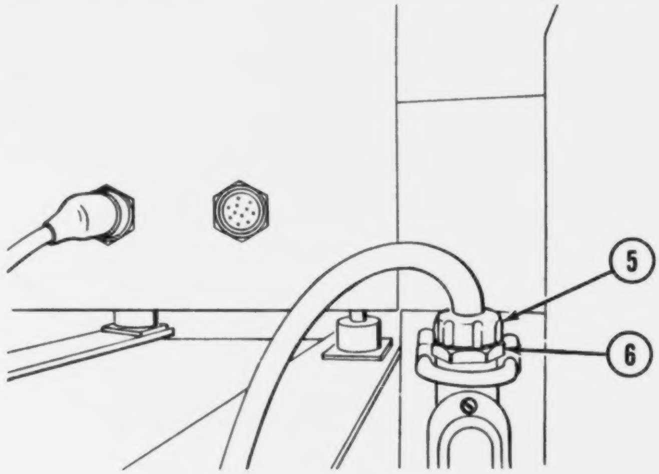
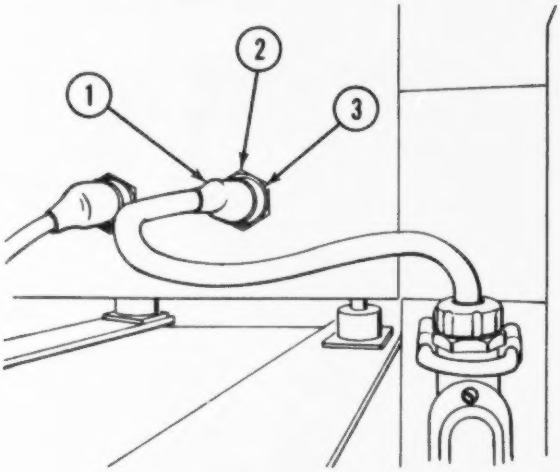
5. INSTALL CONNECTOR HUB (5) ON CONNECTOR BODY (6). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



GO TO NEXT PAGE

V. MAIN CONTROL PANEL CABLE ASSEMBLY P35 INSTALLATION — Continued

6. CONNECT CONNECTOR P35 (1) TO RECEPTACLE J35 (2), AND TURN CONNECTOR SLEEVE (3).



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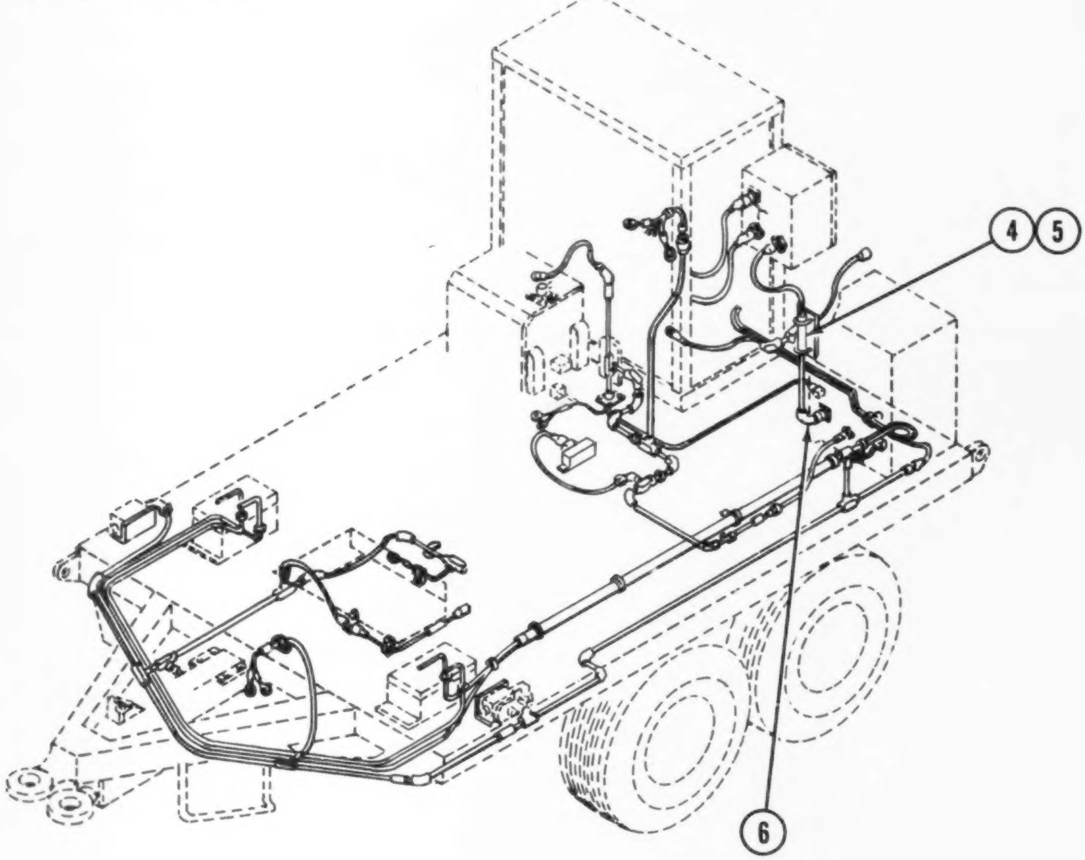
7. INSTALL CONDUIT FITTING COVERS (4) ON CONDUIT TEE (5) AND CONDUIT ELBOW (6). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



8. INSTALL MAIN CONTROL PANEL CABLE ASSEMBLY P35 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P35 WIRE DESTINATION LIST.

CABLE ASSEMBLY P35 WIRE DESTINATION LIST

From Connector P35 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	2	6
B	2	6
C	5	1
D	6	1
E	11	1
F	13	1
G	19	1
H	20	1
J	21	1
K	7	1
L	23	1
M	51	2
N	8	1
P	9	1
R	106	6
S	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

GO TO NEXT PAGE

16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

W. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 REMOVAL

NOTE

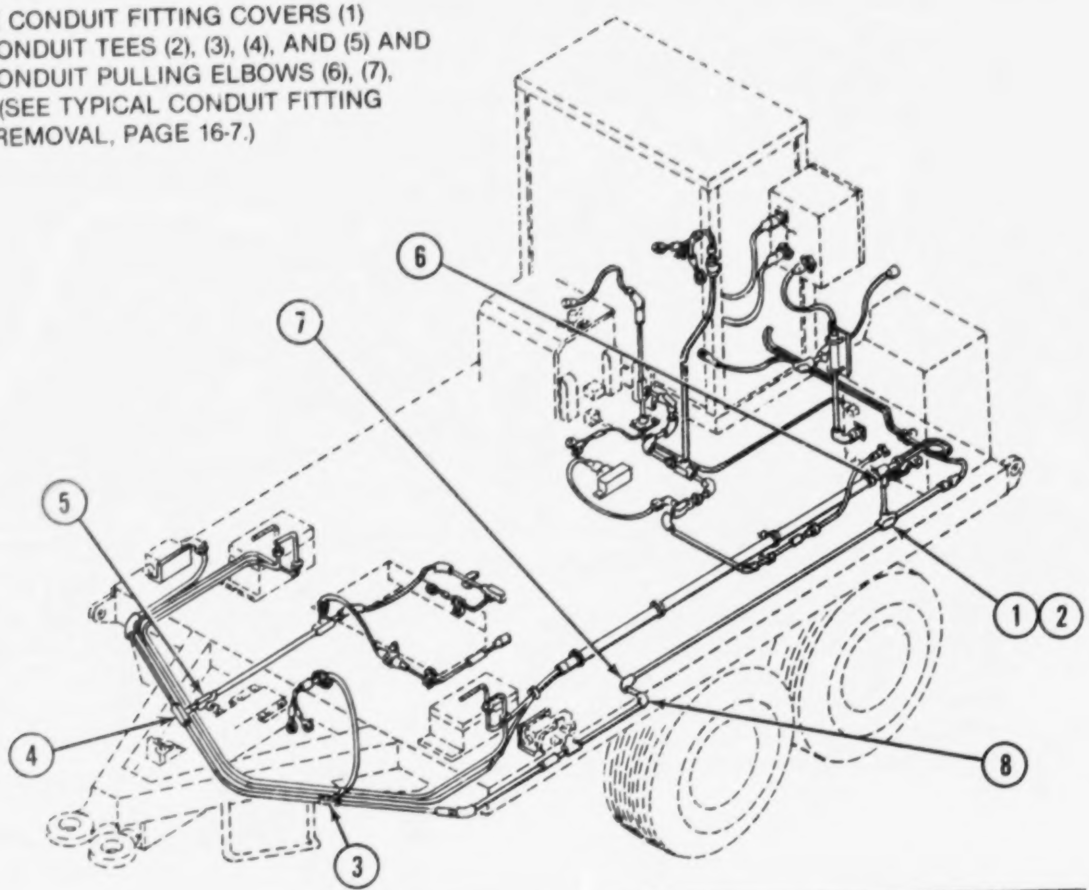
PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY WIRE DESTINATION LIST.)

CABLE ASSEMBLY P41 WIRE DESTINATION LIST

From Connector P41 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	54	4
B	73	5
C	74	4

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), (4), AND (5) AND FROM CONDUIT PULLING ELBOWS (6), (7), AND (8). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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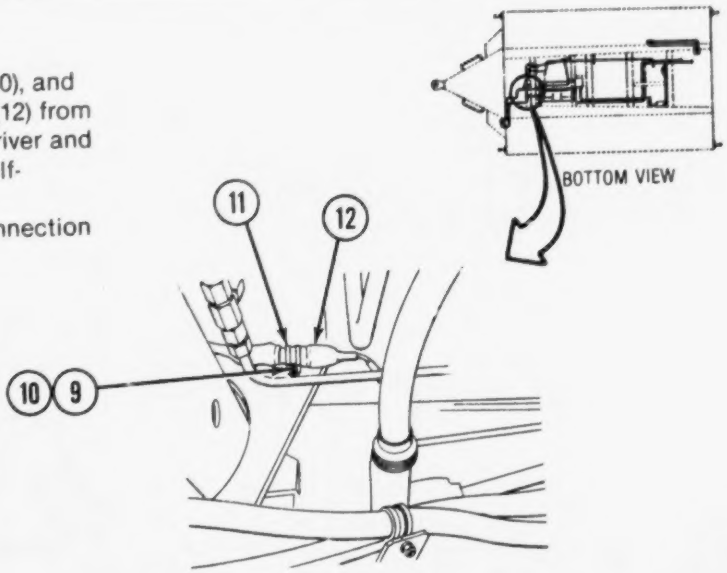
3. REMOVE CLAMP FROM P41/J41 CONNECTION.
   - Remove screw (9), self-locking nut (10), and clamp (11) with P41/J41 connection (12) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench. Discard self-locking nut.
   - Remove clamp (11) from P41/J41 connection (12).



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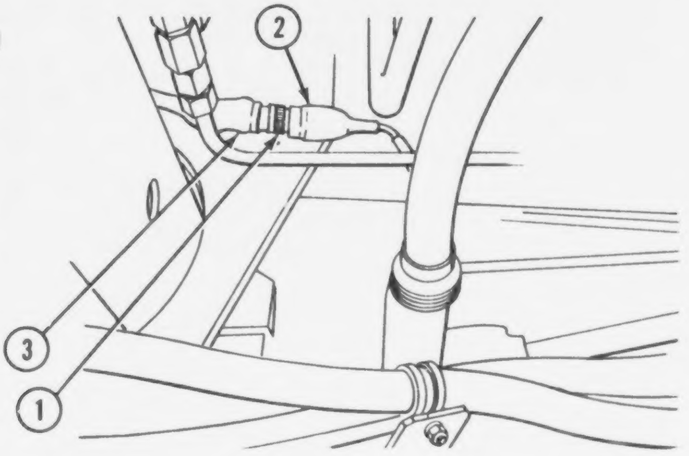
W. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 REMOVAL — Continued

4. TURN CONNECTOR SLEEVE (1), AND DISCONNECT CONNECTOR P41 (2) FROM RECEPTACLE J41 (3).



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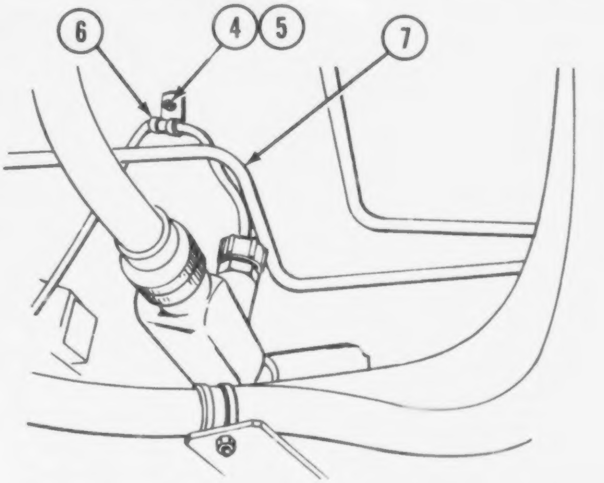
5. REMOVE CLAMP FROM CABLE ASSEMBLY P41.
   - Remove screw (4), self-locking nut (5), and clamp (6) with Cable Assembly P41 (7) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench. Discard self-locking nut.
   - Remove clamp (6) from Cable Assembly P41 (7).



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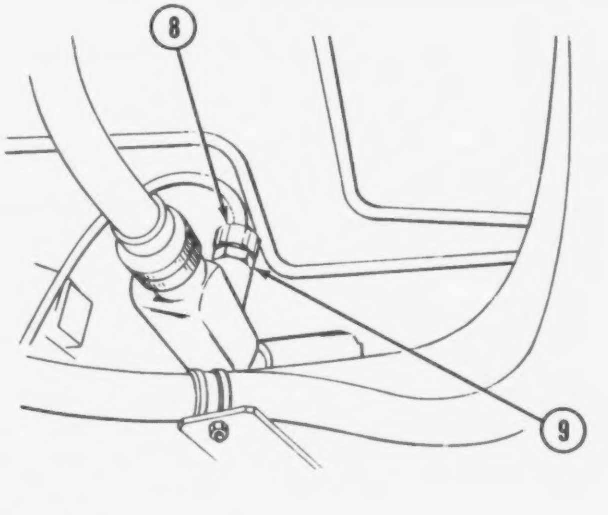
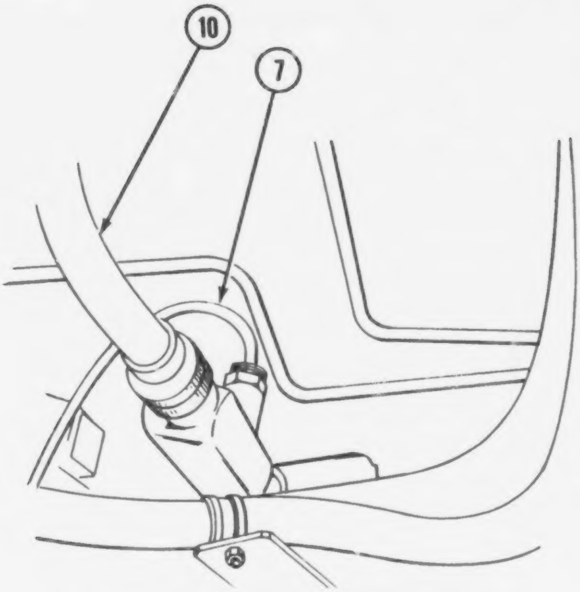
6. REMOVE CONNECTOR HUB (8) FROM CONNECTOR BODY (9). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



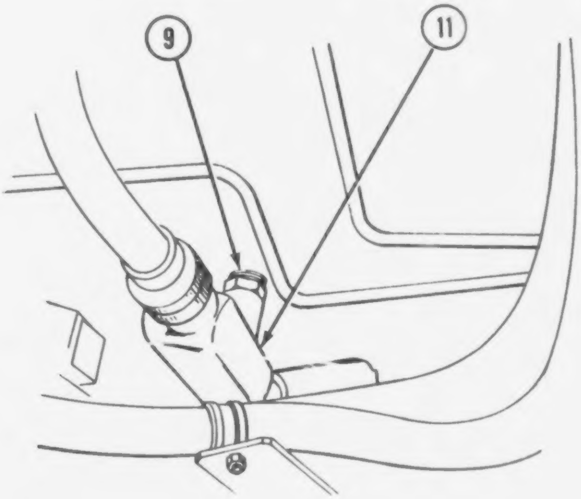
7. REMOVE OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 (7) FROM CONDUIT (10). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

Do not remove connector body unless required for maintenance.

8. REMOVE CONNECTOR BODY (9) FROM CONDUIT TEE (11). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



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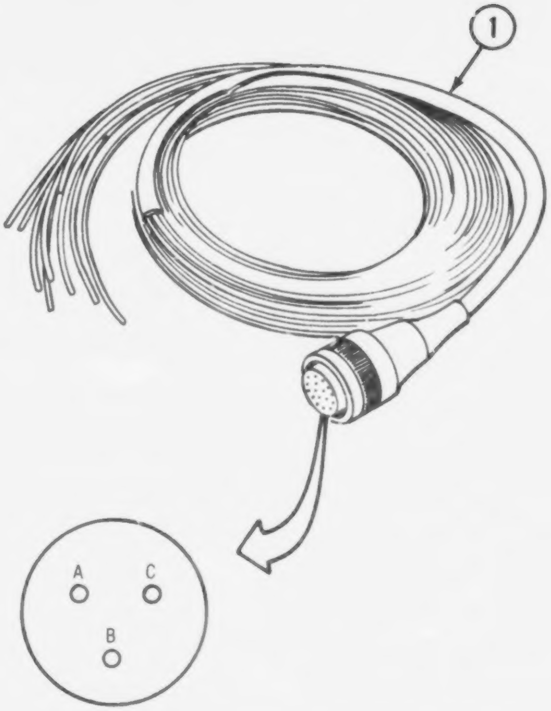
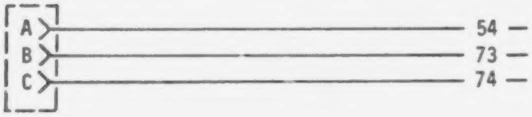
16-4 CABLE, WIRE BUNDLE, AND LEAD ASSEMBLIES — Continued

X. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P41 WIRING DIAGRAM.)



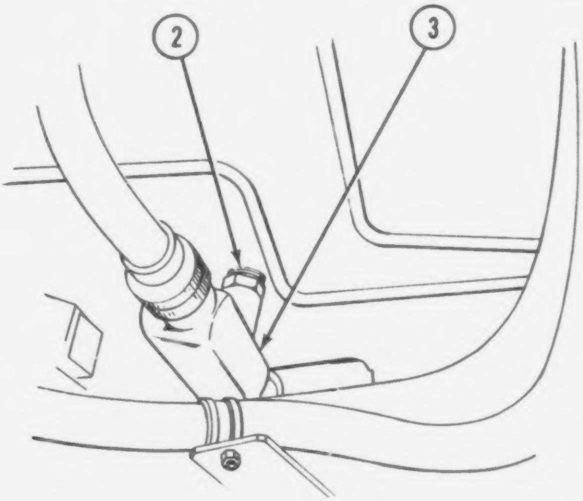


Cable Assembly P41 Wiring Diagram

NOTE

If connector body was not removed from conduit tee, go to step 3.

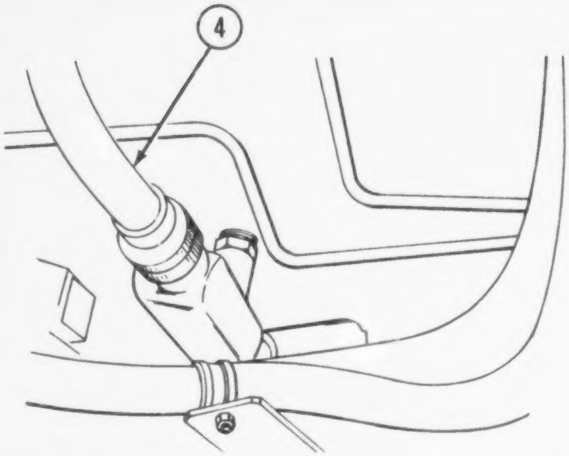
2. INSTALL NEW CONNECTOR BODY (2) ON CONDUIT TEE (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (4). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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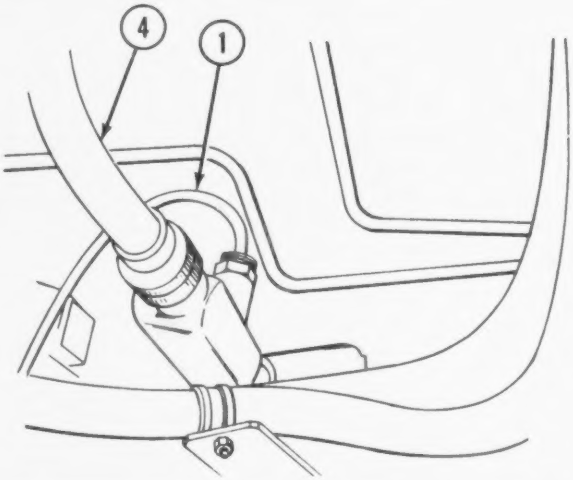
4. INSTALL OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 (1) IN CONDUIT (4). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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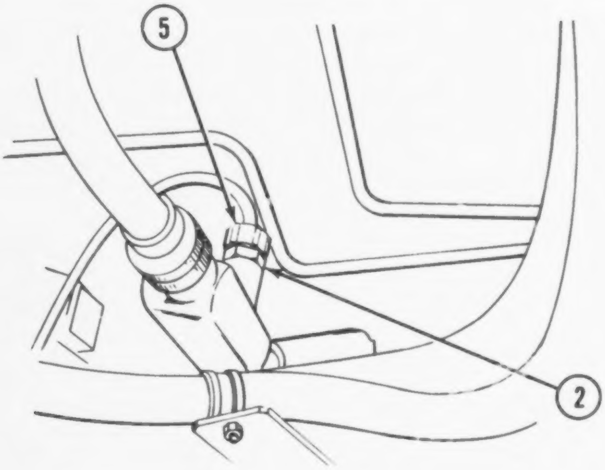
5. INSTALL CONNECTOR HUB (5) ON CONNECTOR BODY (2). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



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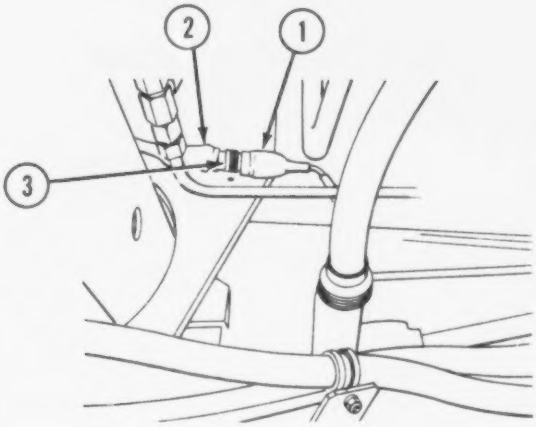
X. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 INSTALLATION — Continued

6. CONNECT CONNECTOR P41 (1) TO RECEPTACLE J41 (2), AND TURN CONNECTOR SLEEVE (3).



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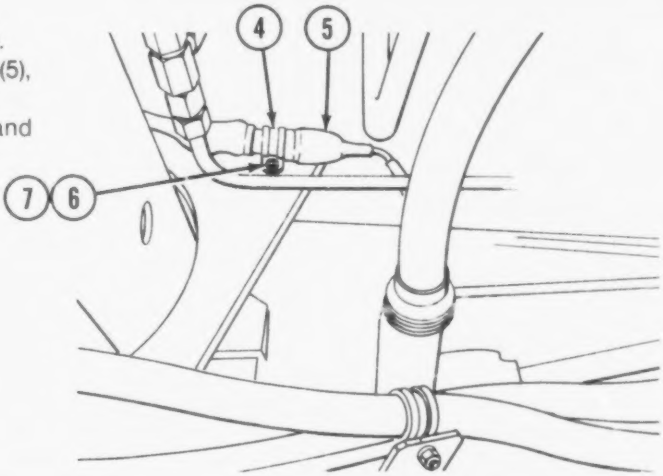
7. INSTALL CLAMP ON CHASSIS.
   - Place clamp (4) on P41/J41 connection (5).
   - Install clamp (4) with P41/J41 connection (5), screw (6) and new self-locking nut (7) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench.



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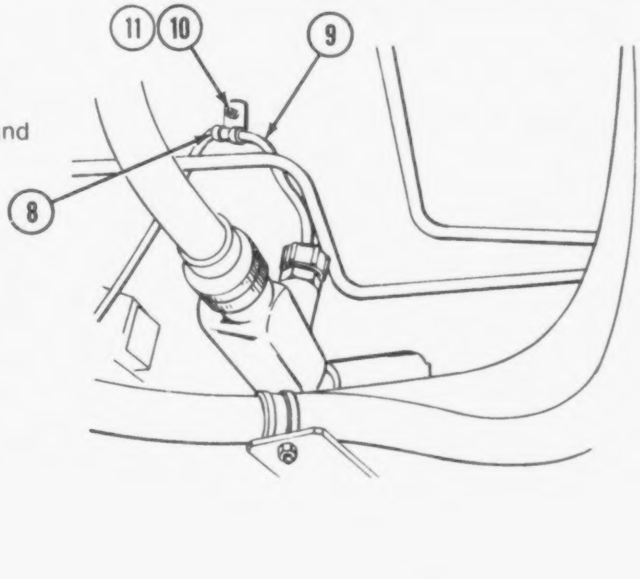
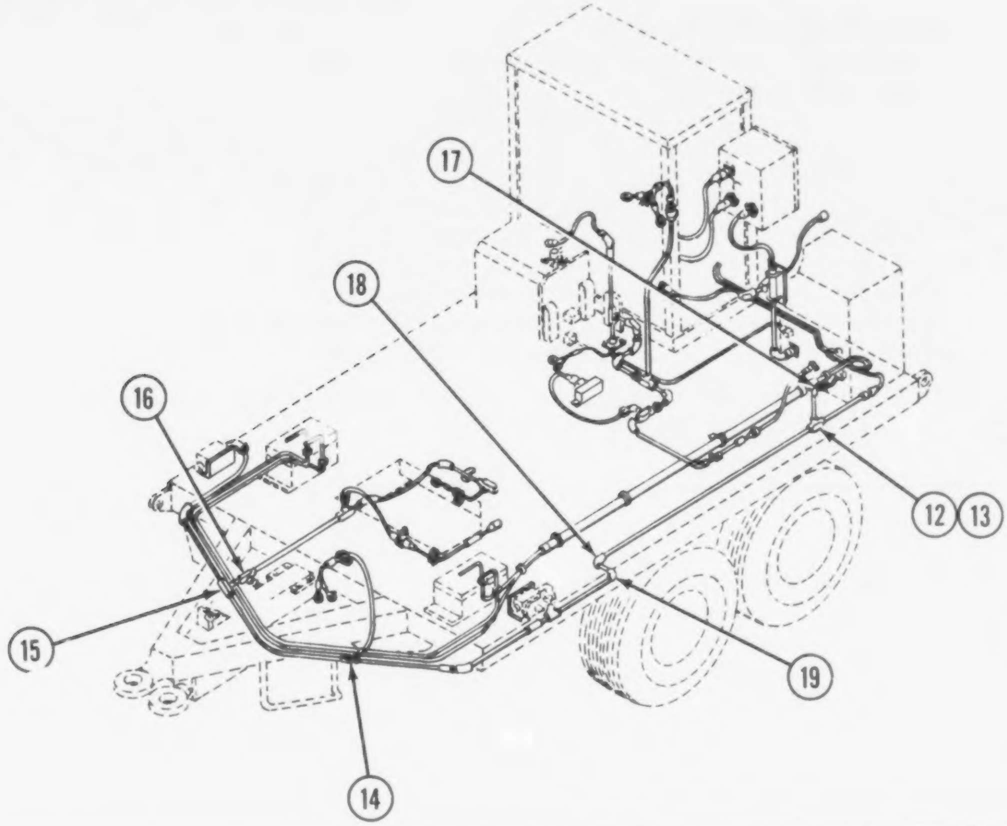
8. INSTALL CLAMP ON CABLE P41.
   - Install clamp (8) on Cable P41 (9).
   - Install clamp (8) with Cable P41 (9), screw (10) and new self-locking nut (11) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench.



9. INSTALL CONDUIT FITTING COVERS (12) ON CONDUIT TEES (13), (14), (15), AND (16) AND ON CONDUIT PULLING ELBOWS (17), (18), AND (19). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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10. INSTALL OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P41 WIRE DESTINATION LIST.)

CABLE ASSEMBLY P41 WIRE DESTINATION LIST

From Connector P41 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	54	4
B	73	5
C	74	5

GO TO NEXT PAGE

X. OSCILLATOR SOLENOID VALVE CABLE ASSEMBLY P41 INSTALLATION — Continued

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

Y. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

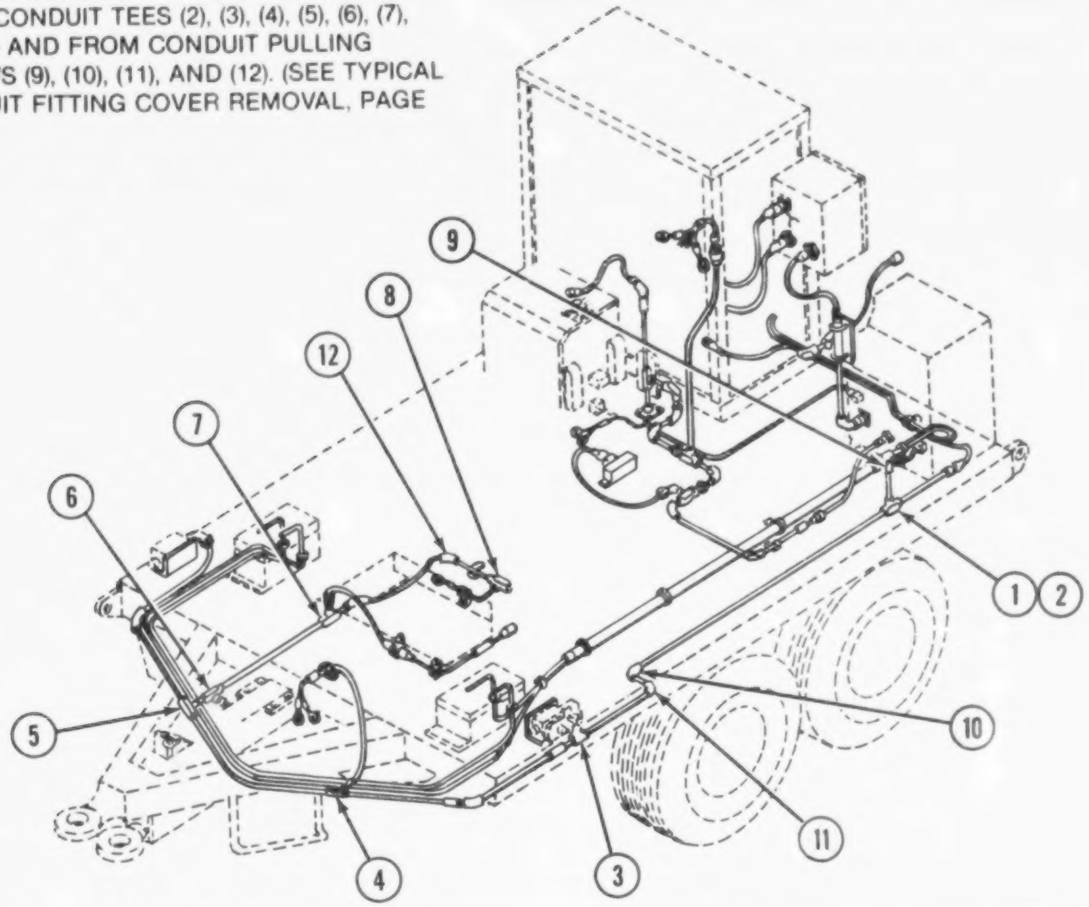
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING CABLE ASSEMBLY P42 WIRE DESTINATION LIST.)

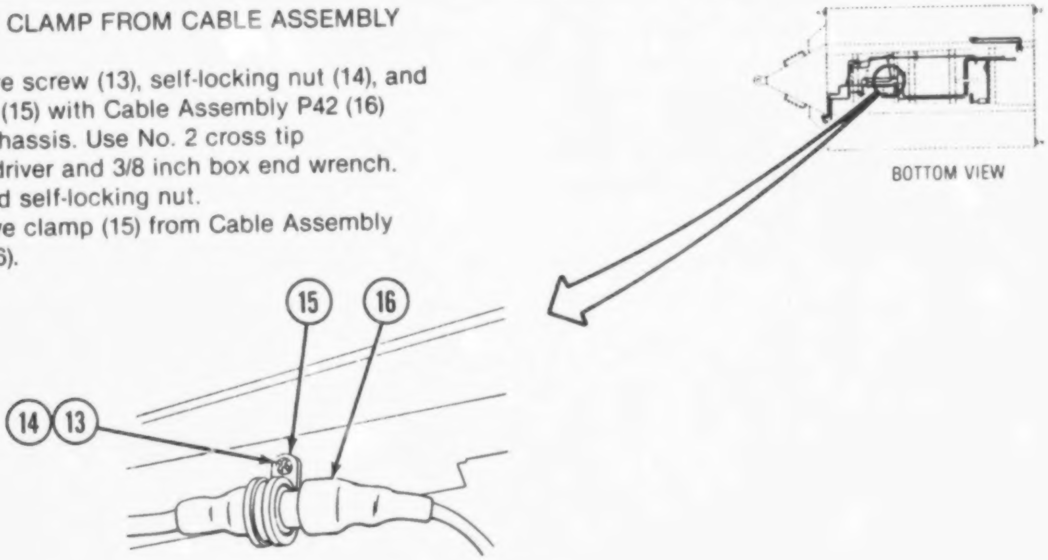
CABLE ASSEMBLY P42 WIRE DESTINATION LIST

From Connector P42 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	54	4
B	45	5
C	Open	Open

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), (4), (5), (6), (7), AND (8) AND FROM CONDUIT PULLING ELBOWS (9), (10), (11), AND (12). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



3. REMOVE CLAMP FROM CABLE ASSEMBLY P42.
   - Remove screw (13), self-locking nut (14), and clamp (15) with Cable Assembly P42 (16) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench. Discard self-locking nut.
   - Remove clamp (15) from Cable Assembly P42 (16).



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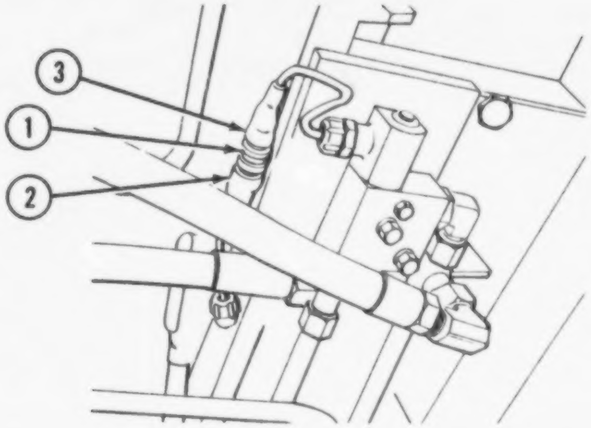
Y. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 REMOVAL — Continued

4. TURN CONNECTOR SLEEVE (1), AND DISCONNECT CONNECTOR P42 (2) FROM RECEPTACLE J42 (3).



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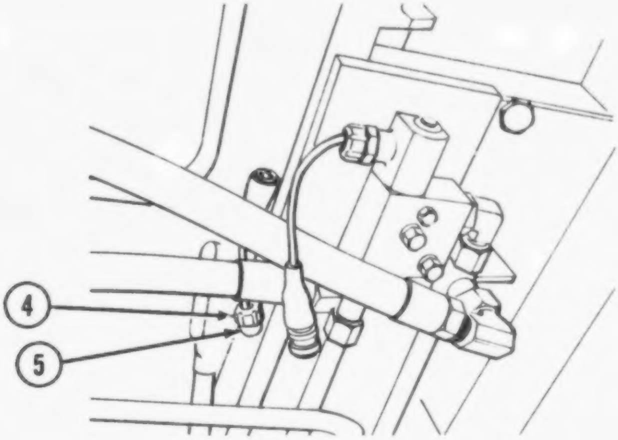
5. REMOVE CONNECTOR HUB (4) FROM 90° ELBOW (5). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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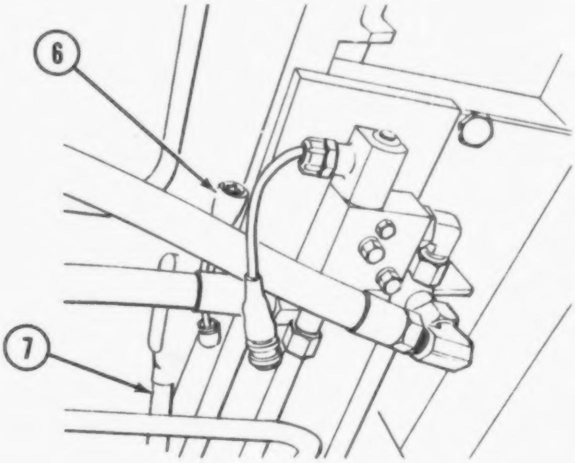
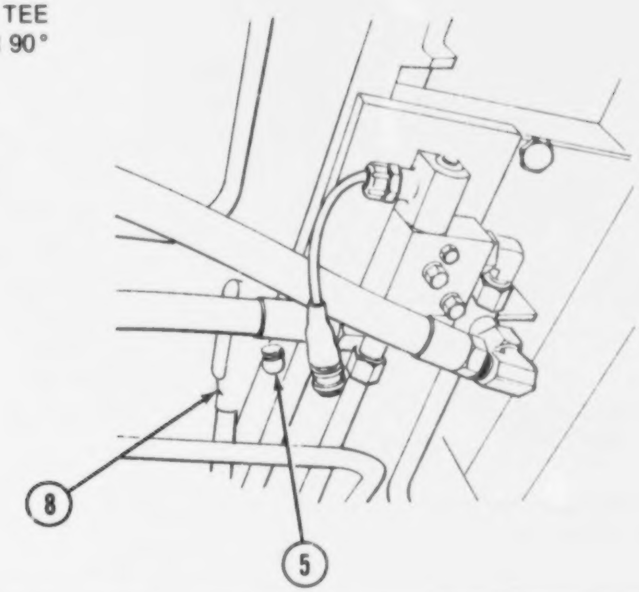
6. REMOVE LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 (6) FROM CONDUIT (7). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

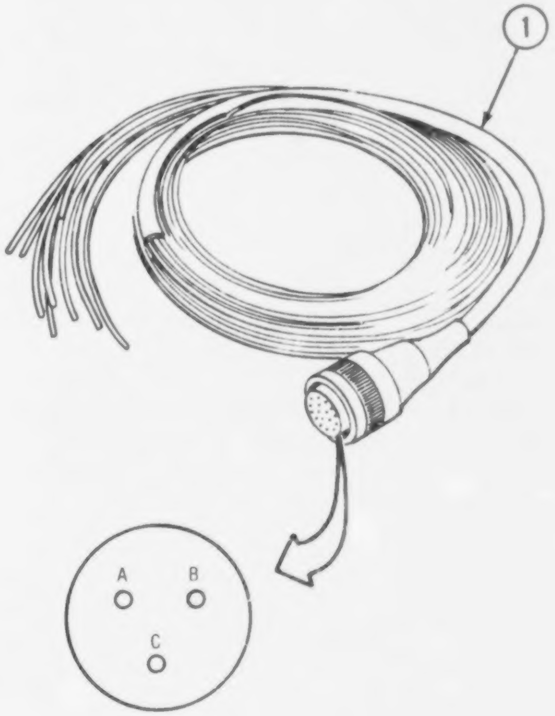
Do not remove 90° elbow unless required for maintenance.

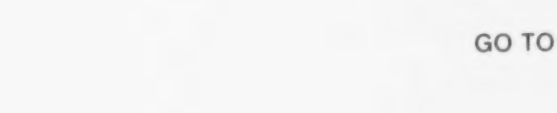
7. REMOVE 90° ELBOW (5) FROM CONDUIT TEE (8). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)



Z. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P42 WIRING DIAGRAM.)





Cable Assembly P42 Wiring Diagram

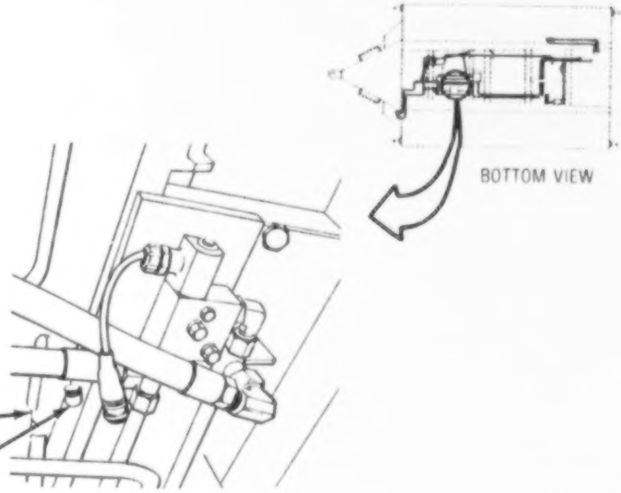
GO TO NEXT PAGE

Z. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 INSTALLATION — Continued

NOTE

If 90° elbow was not removed from conduit tee, go to step 3.

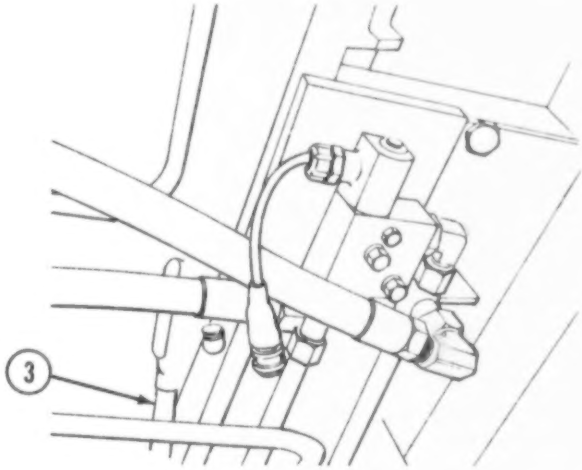
2. INSTALL NEW 90° ELBOW (1) ON CONDUIT TEE (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (3). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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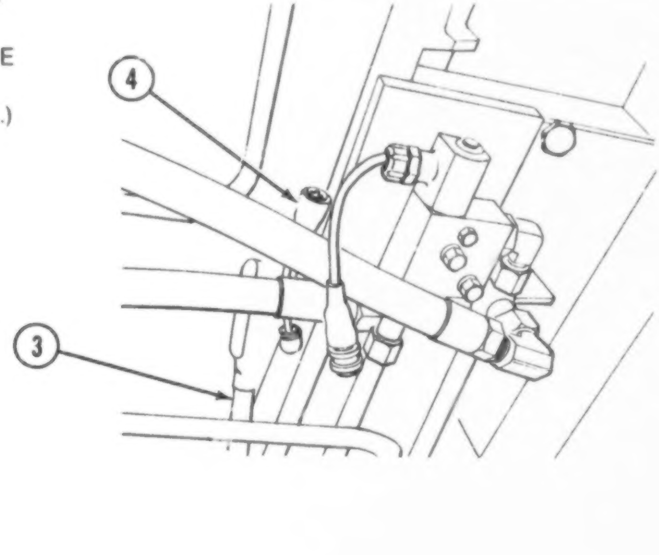
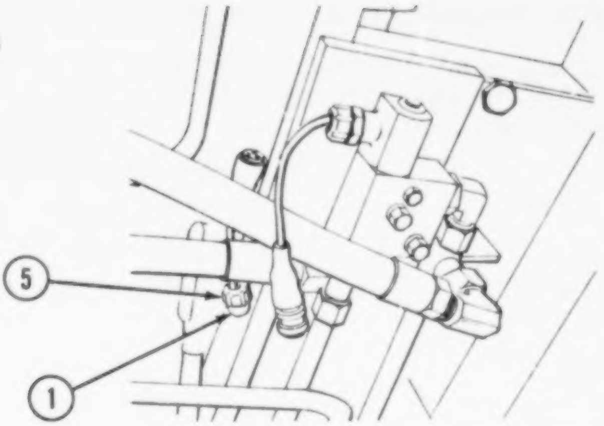
4. INSTALL LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 (4) IN CONDUIT (3). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



5. INSTALL CONNECTOR HUB (5) ON 90° ELBOW (1). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



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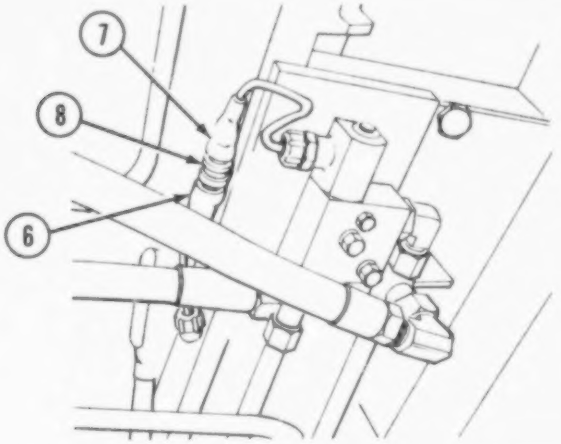
6. CONNECT CONNECTOR P42 (6) TO RECEPTACLE J42 (7), AND TURN CONNECTOR SLEEVE (8).



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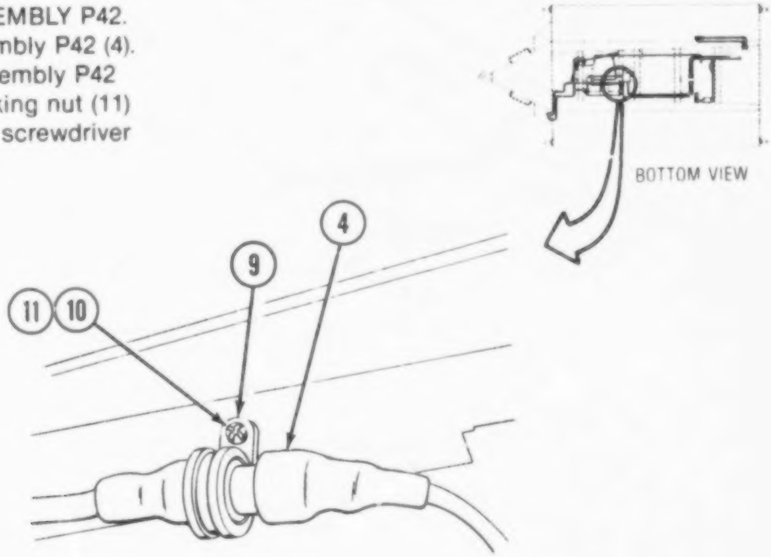
7. INSTALL CLAMP ON CABLE ASSEMBLY P42.
   - Install clamp (9) on Cable Assembly P42 (4).
   - Install clamp (9) with Cable Assembly P42 (4), screw (10), and new self-locking nut (11) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch box end wrench.



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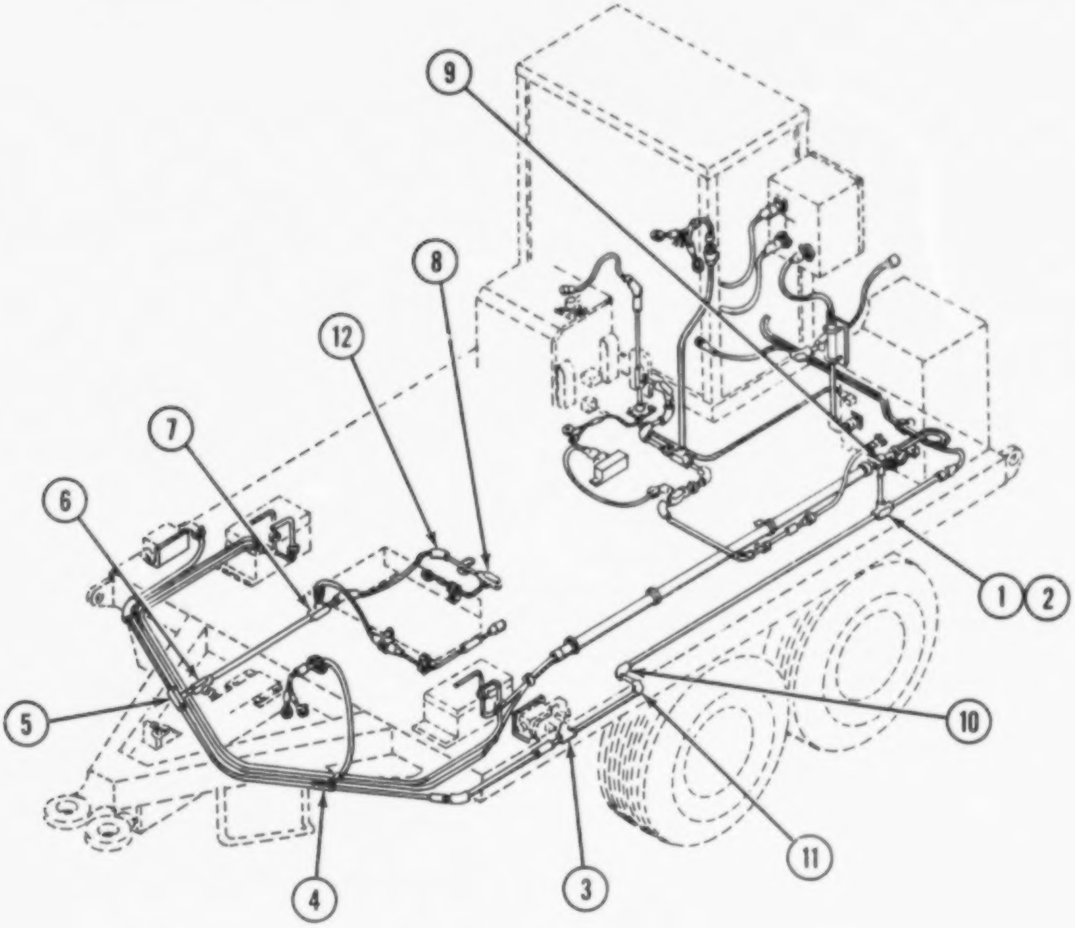
Z. LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 INSTALLATION — Continued

8. INSTALL CONDUIT FITTING COVERS (1) ON CONDUIT TEES (2), (3), (4), (5), (6), (7), AND (8) AND ON CONDUIT PULLING ELBOWS (9), (10), (11), AND (12). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



9. INSTALL LAUNCHER WHEEL SOLENOID VALVE CABLE ASSEMBLY P42 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING CABLE ASSEMBLY P42 WIRE DESTINATION LIST.)

CABLE ASSEMBLY P42 WIRE DESTINATION LIST

From Connector P42 Socket	To Terminal Board 1TB	
	Wire and Terminal No.	Part
A	54	4
B	75	5
C	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AA. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

GO TO NEXT PAGE

AA. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A REMOVAL — Continued

1. REMOVE LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A LEADS FROM TERMINAL BOARD 1TB AND POWER PANEL GROUND BUS. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6; POWER PANEL ASSEMBLY, PAGE 11-111; AND FOLLOWING CABLE ASSEMBLY P43/P43A WIRE DESTINATION LIST.)

CABLE ASSEMBLY P43/P43A WIRE DESTINATION LIST

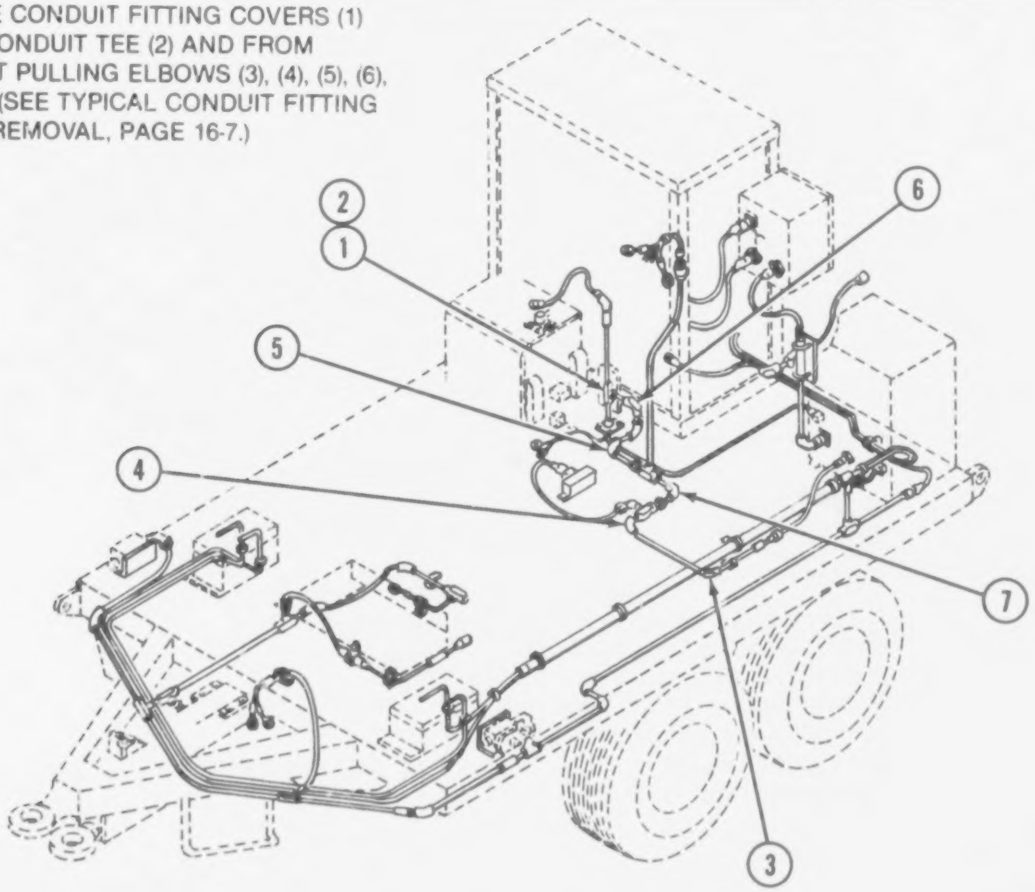
NOTE

Connector A does not go to Terminal Board 1TB. Connector A Wire No. 2 goes to power panel ground bus.

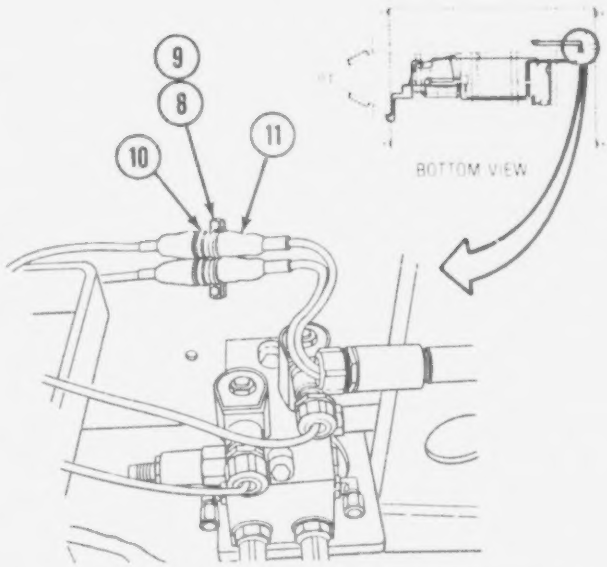
From Sockets P43 and P43A	To Terminal Board 1TB	
	Wire and Terminal No.	Part
B	82	5
C	Open	Open

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND FROM CONDUIT PULLING ELBOWS (3), (4), (5), (6), AND (7). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



3. REMOVE P43/J43 CONNECTION FROM CHASSIS.
   - Remove self-locking nut (8), screw (9), and clamp (10) with P43/J43 connection (11) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper. Discard self-locking nut.
   - Remove clamp (10) from P43/J43 connection (11).



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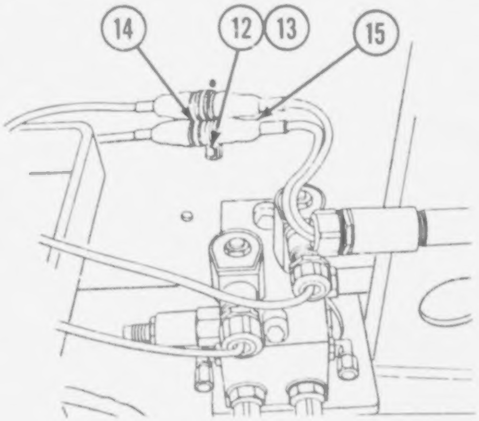
4. REMOVE P43A/J43A CONNECTION FROM CHASSIS.
   - Remove self-locking nut (12), screw (13), and clamp (14) with P43A/J43A connection (15) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper. Discard self-locking nut.
   - Remove clamp (14) from P43A/J43A connection (15).



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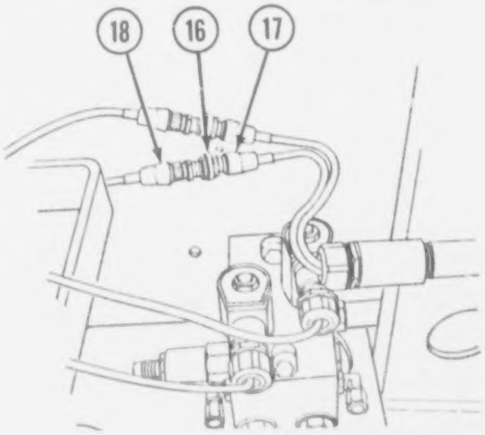
5. TURN CONNECTOR SLEEVE (16), AND DISCONNECT CONNECTOR P43A (17) FROM RECEPTACLE J43A (18).



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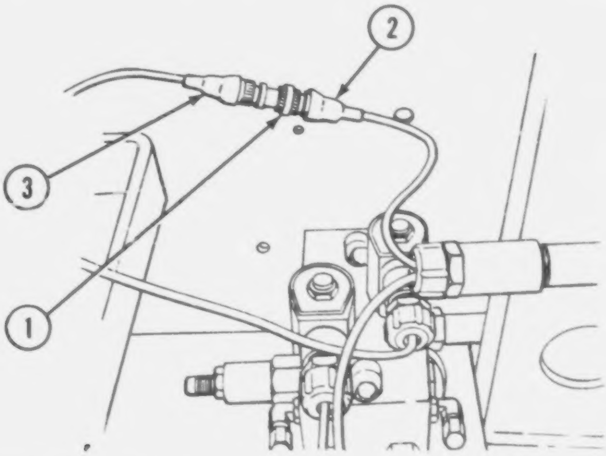
AA. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A REMOVAL — Continued

6. TURN CONNECTOR SLEEVE (1), AND DISCONNECT CONNECTOR P43 (2) FROM RECEPTACLE J43 (3).



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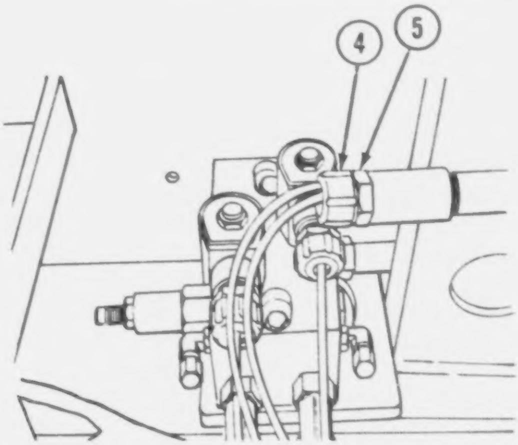
7. REMOVE CONNECTOR HUB (4) FROM CONNECTOR BODY (5). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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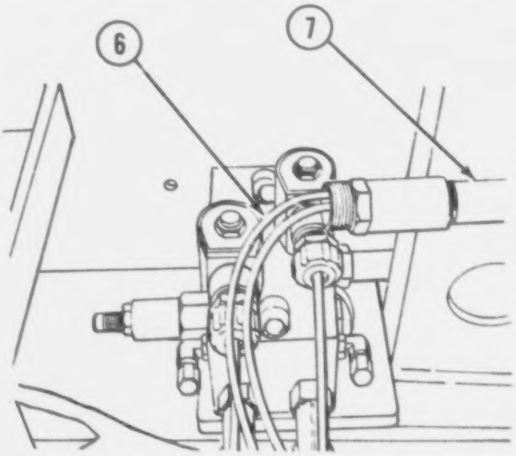
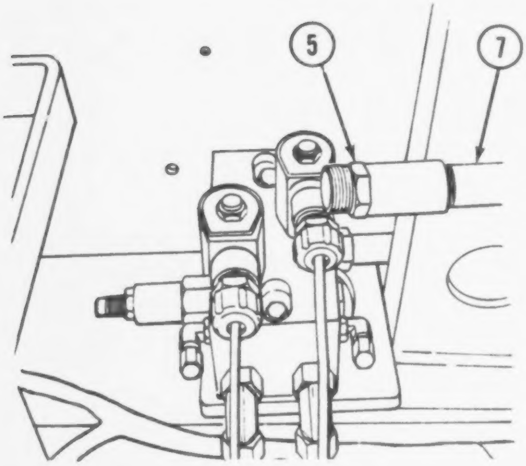
8. REMOVE LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A (6) FROM CONDUIT (7). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

Do not remove connector body unless conduit will be replaced.

9. REMOVE CONNECTOR BODY (5) FROM CONDUIT (7). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)

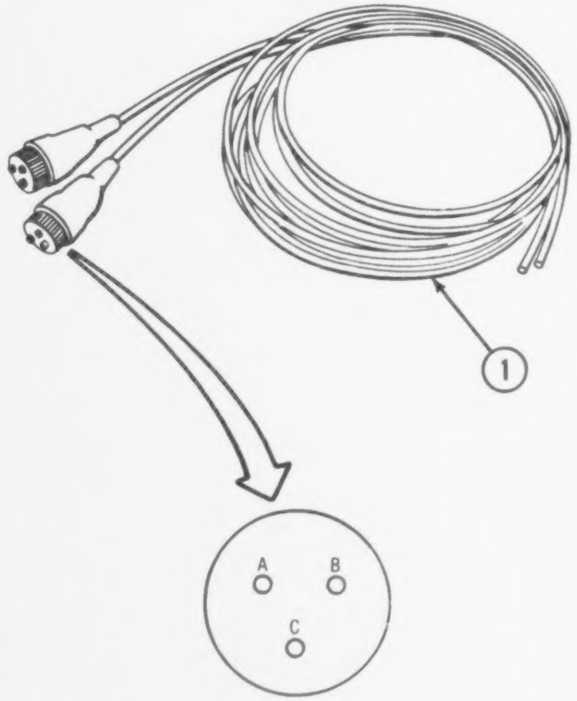


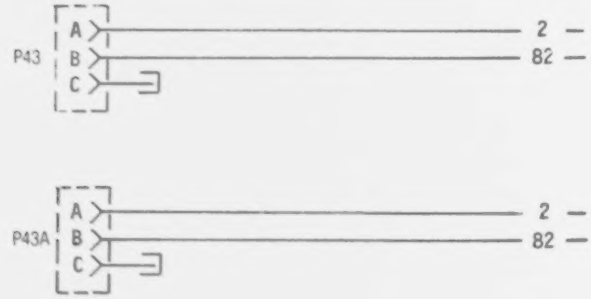
AB. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A INSTALLATION

NOTE

Two connectors are identified and checked the same way.

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P43/P43A WIRING DIAGRAM.)





Cable Assembly P43/P43A Wiring Diagram

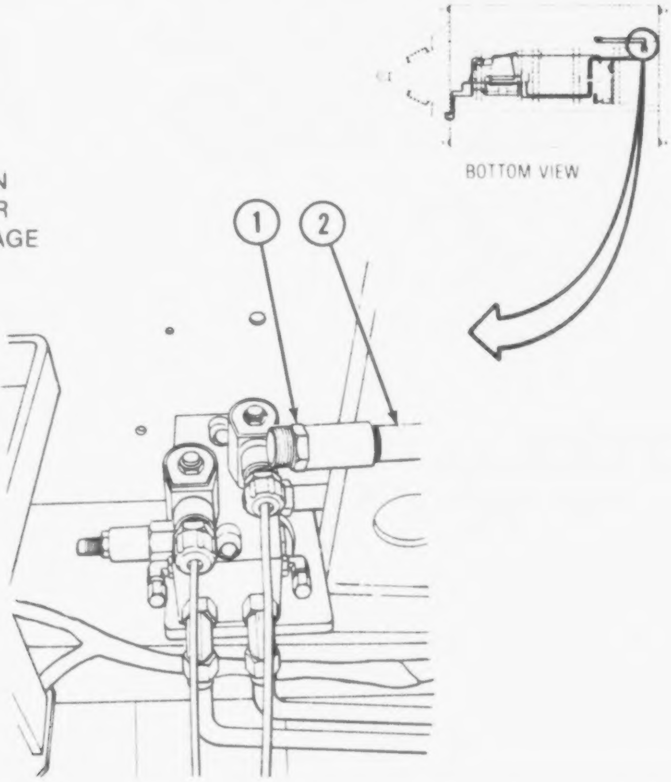
GO TO NEXT PAGE

AB. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A INSTALLATION — Continued

NOTE

If connector body was not removed from conduit, go to step 3.

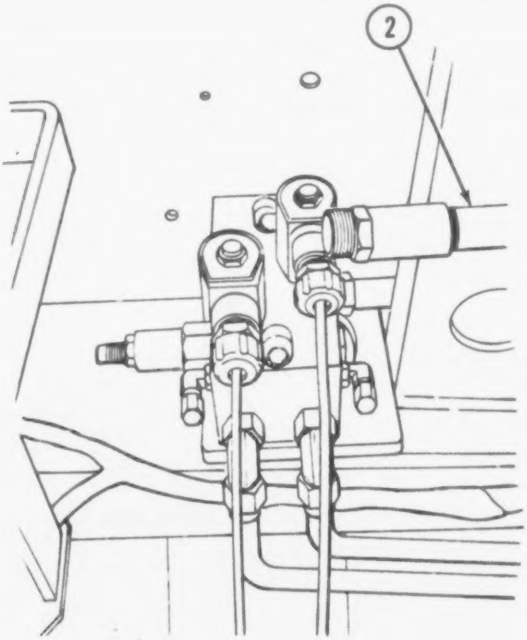
2. INSTALL NEW CONNECTOR BODY (1) ON CONDUIT (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



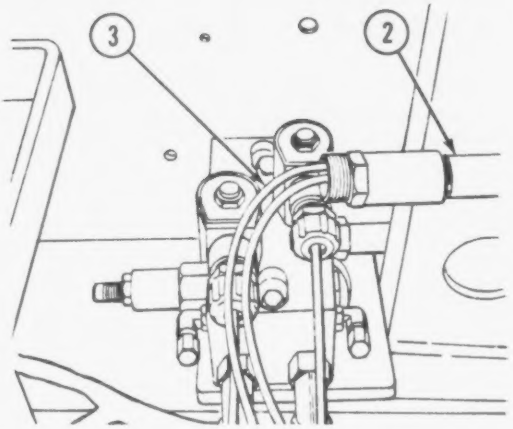
NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (2). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



4. INSTALL LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A (3) IN CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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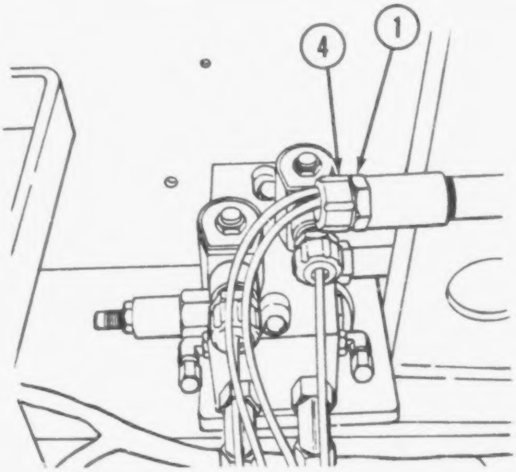
5. INSTALL CONNECTOR HUB (4) ON CONNECTOR BODY (1). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



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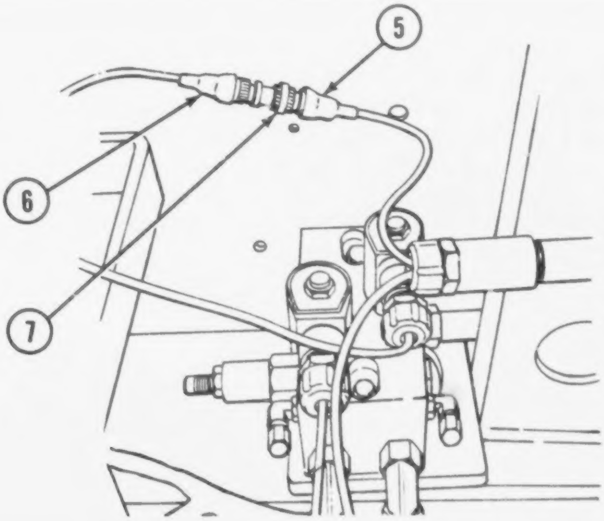
6. CONNECT CONNECTOR P43 (5) TO RECEPTACLE J43 (6), AND TURN CONNECTOR SLEEVE (7).



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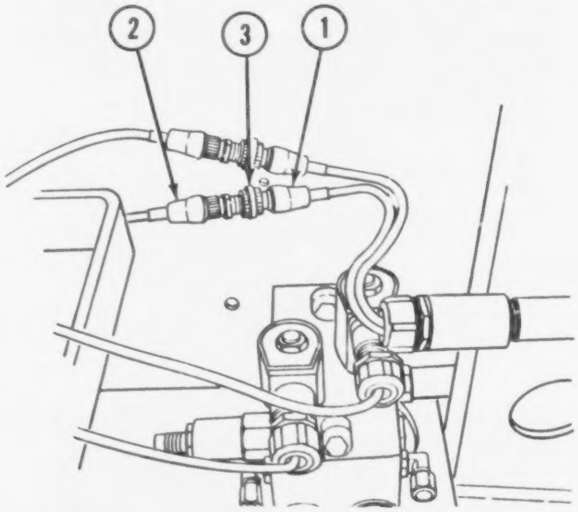
AB. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A INSTALLATION — Continued

7. CONNECT CONNECTOR P43A (1) TO RECEPTACLE J43A (2), AND TURN CONNECTOR SLEEVE (3).



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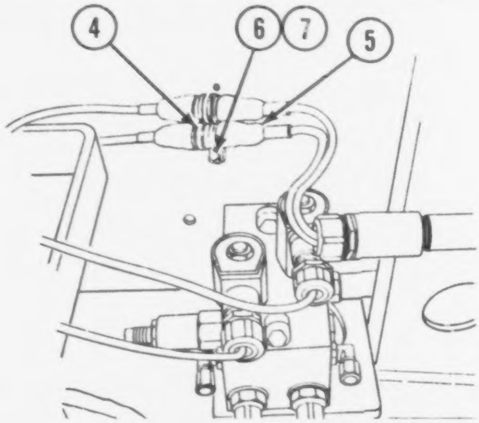
8. INSTALL P43A/J43A CONNECTION ON CHASSIS.
   - Place clamp (4) on P43A/J43A connection (5).
   - Install clamp (4) with P43A/J43A connection (5), screw (6), and new self-locking nut (7) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper.



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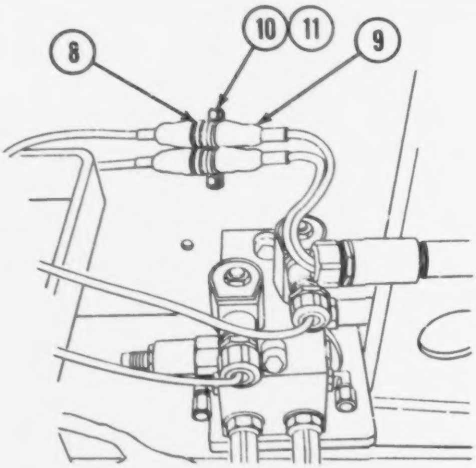
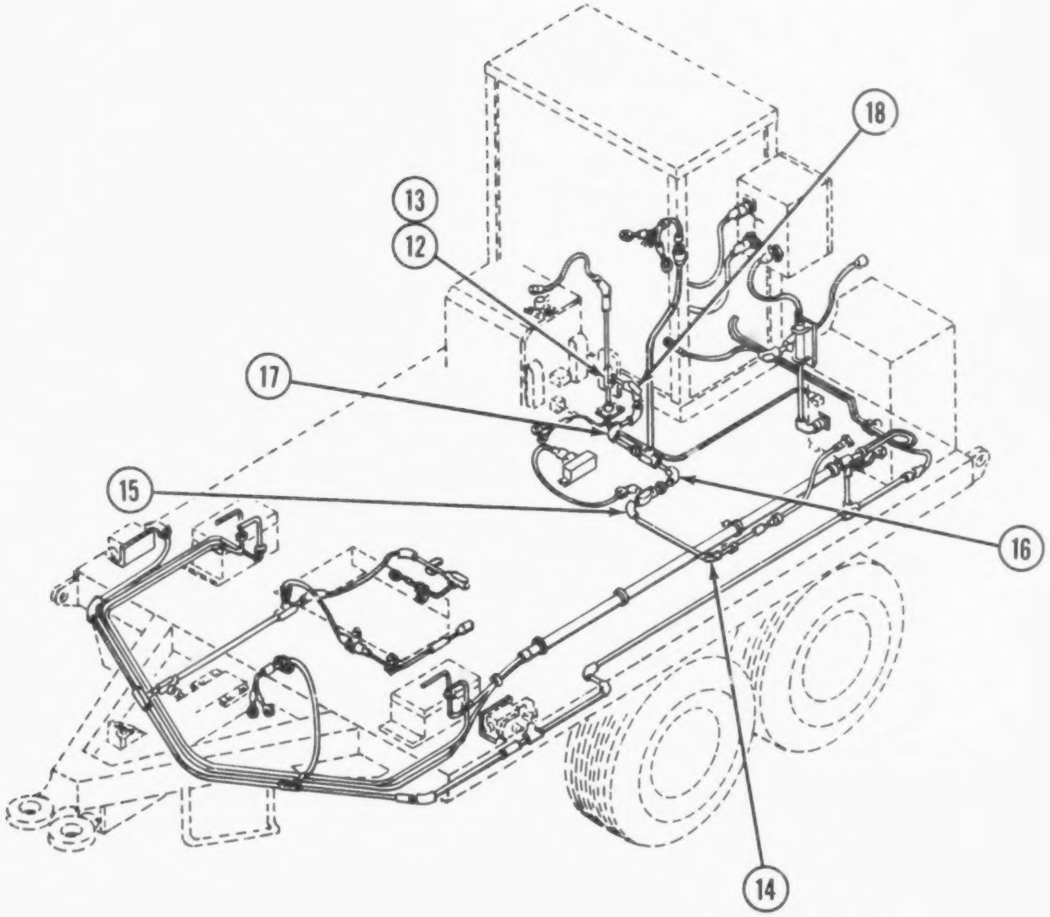
9. INSTALL P43/J43 CONNECTION ON CHASSIS.
   - Place clamp (8) on P43/J43 connection (9).
   - Install clamp (8) with P43/J43 connection (9), screw (10), and new self-locking nut (11) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper.



10. INSTALL CONDUIT FITTING COVERS (12) ON CONDUIT TEE (13) AND ON CONDUIT PULLING ELBOWS (14), (15), (16), (17), AND (18). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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AB. LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A INSTALLATION — Continued

11. INSTALL LEFT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P43/P43A LEADS ON TERMINAL BOARD 1TB AND POWER PANEL GROUND BUS. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17; POWER PANEL ASSEMBLY, PAGE 11-111; AND FOLLOWING CABLE ASSEMBLY P43 WIRE DESTINATION LIST.)

CABLE ASSEMBLY P43/P43A WIRE DESTINATION LIST

NOTE

Connector A does not go to Terminal Board 1TB. Connector A Wire No. 2 goes to power panel ground bus.

From Sockets P43 and P43A	To Terminal Board 1TB	
	Wire and Terminal No.	Part
B	82	5
C	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AC. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

1. REMOVE RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A LEADS FROM TERMINAL BOARD 1TB AND POWER PANEL GROUND BUS. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6; POWER PANEL ASSEMBLY, PAGE 11-111; AND FOLLOWING CABLE ASSEMBLY P44/P44A WIRE DESTINATION LIST.)

CABLE ASSEMBLY P44/P44A WIRE DESTINATION LIST

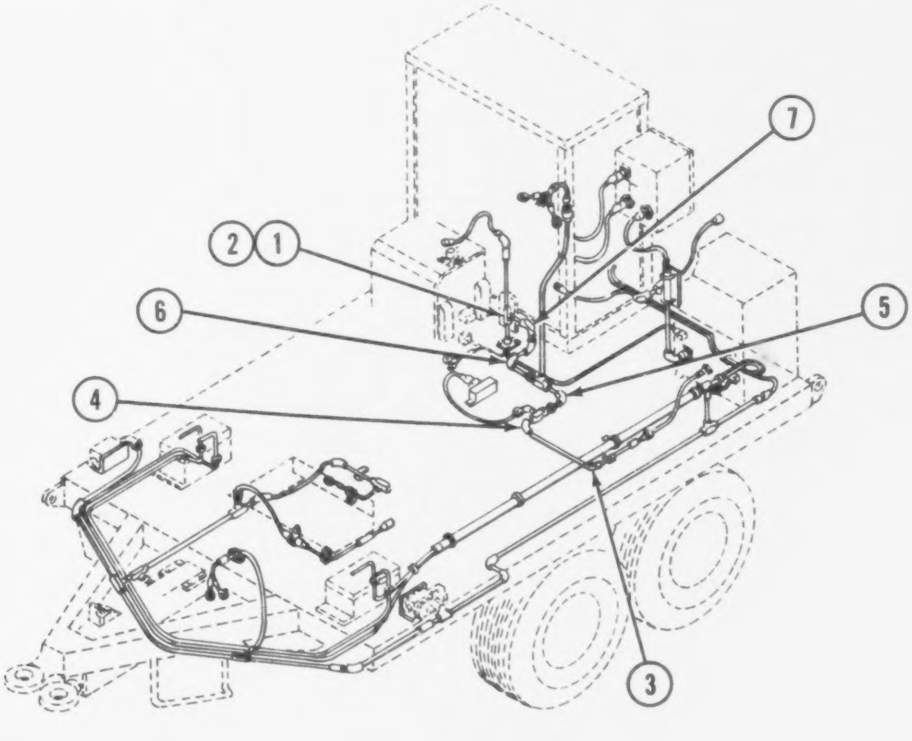
NOTE

Connector A does not go to Terminal Board 1TB. Connector A Wire No. 2 goes to power panel ground bus.

From Sockets P44 and P44A	To Terminal Board 1TB	
	Wire and Terminal No.	Part
B	82	5
C	Open	Open

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND FROM CONDUIT PULLING ELBOWS (3), (4), (5), (6), AND (7). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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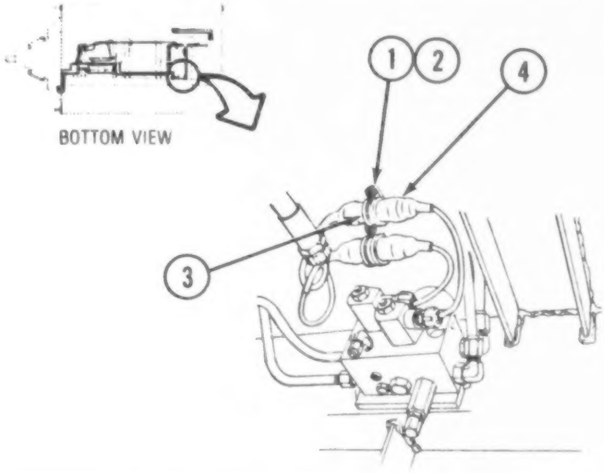
AC. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A REMOVAL — Continued

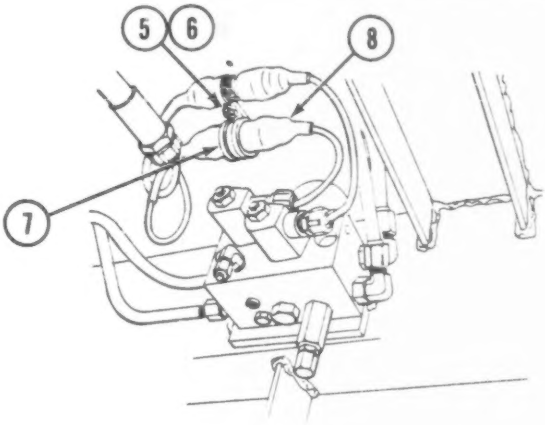
WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

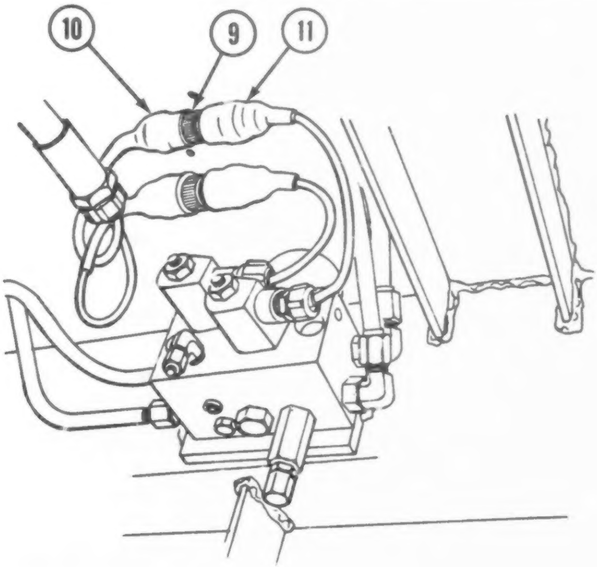
3. REMOVE P44/J44 CONNECTION FROM CHASSIS.
   - Remove self-locking nut (1), screw (2), and clamp (3) with P44/J44 connection (4) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper. Discard self-locking nut.
   - Remove clamp (3) from P44/J44 connection (4).



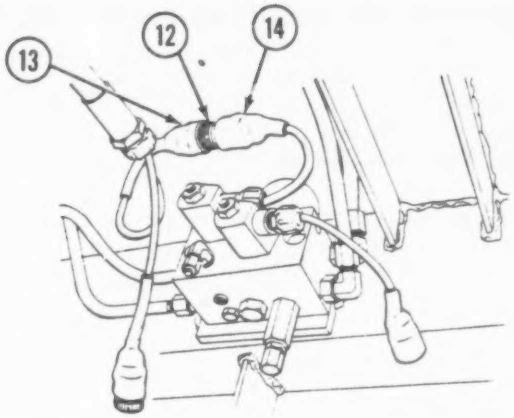
4. REMOVE P44A/J44A CONNECTION FROM CHASSIS.
   - Remove self-locking nut (5), screw (6), and clamp (7) with P44A/J44A connection (8) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper. Discard self-locking nut.
   - Remove clamp (7) from P44A/J44A connection (8).



5. TURN CONNECTOR SLEEVE (9) AND DISCONNECT CONNECTOR P44 (10) FROM RECEPTACLE J44 (11).



6. TURN CONNECTOR SLEEVE (12), AND DISCONNECT CONNECTOR P44A (13) FROM RECEPTACLE J44A (14).



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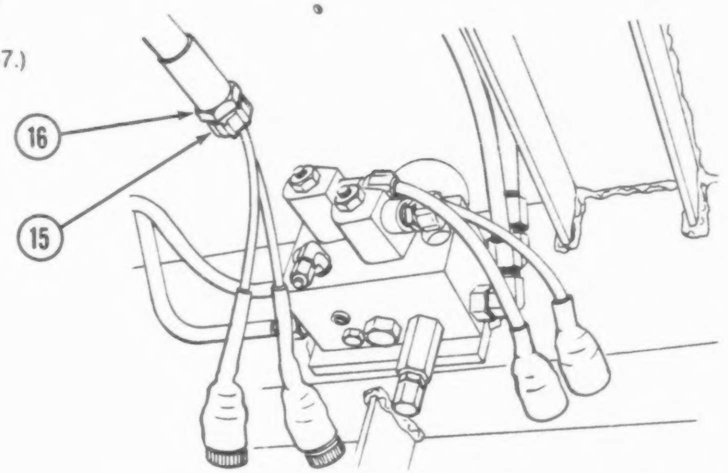
7. REMOVE CONNECTOR HUB (15) FROM CONNECTOR BODY (16). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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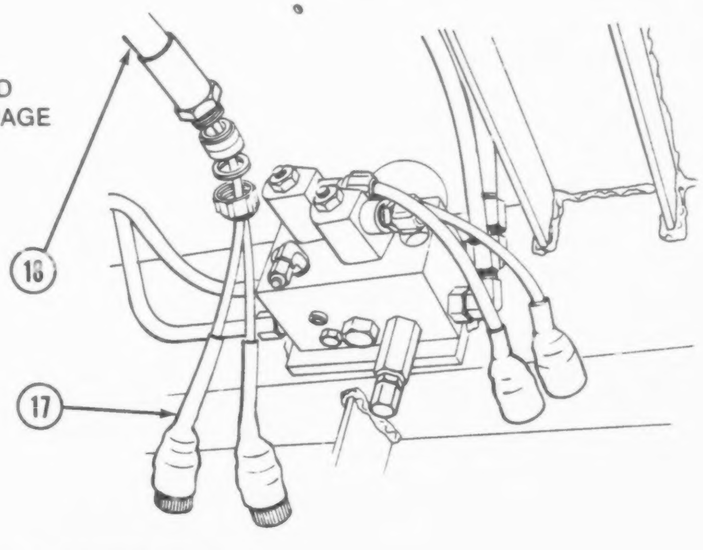
8. REMOVE RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A (17) FROM CONDUIT (18). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



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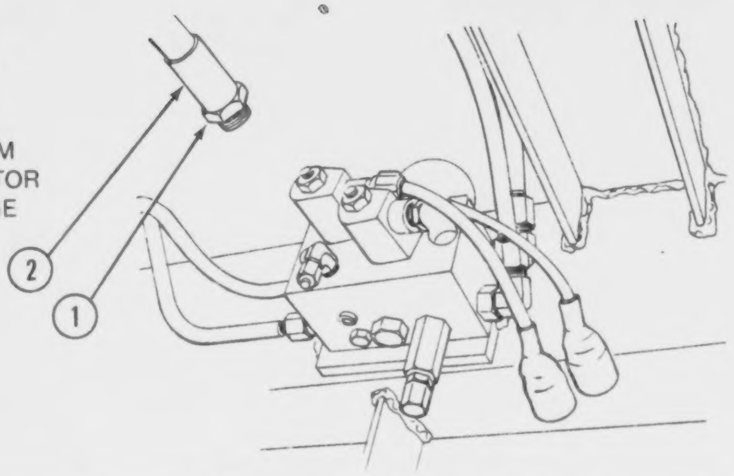
AC. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A REMOVAL — Continued

NOTE

Do not remove connector body unless required for maintenance.

9. REMOVE CONNECTOR BODY (1) FROM CONDUIT (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)

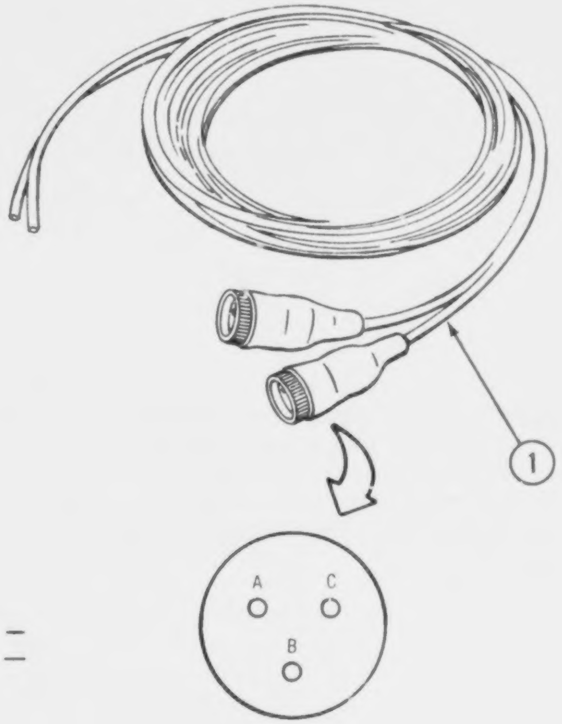


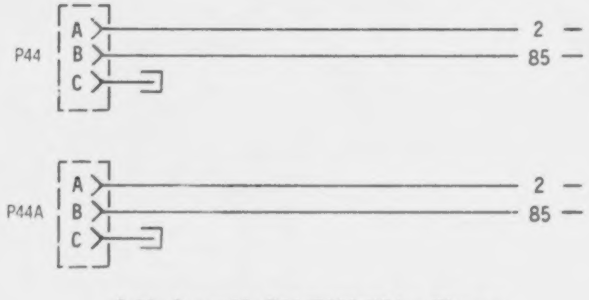
AD. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A INSTALLATION

NOTE

Two connectors are identified and checked the same way.

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE P44/P44A (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING CABLE ASSEMBLY P44/P44A WIRING DIAGRAM.)



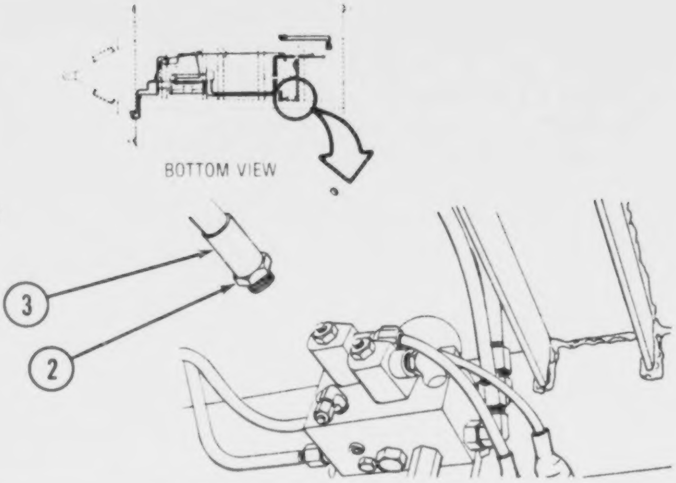


Cable Assembly P44/P44A Wiring Diagram

NOTE

If connector body was not removed from conduit, go to step 3.

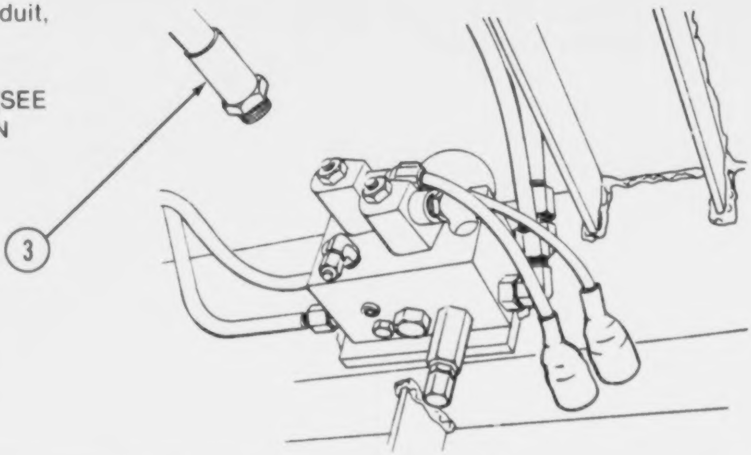
2. INSTALL NEW CONNECTOR BODY (2) ON CONDUIT (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (3). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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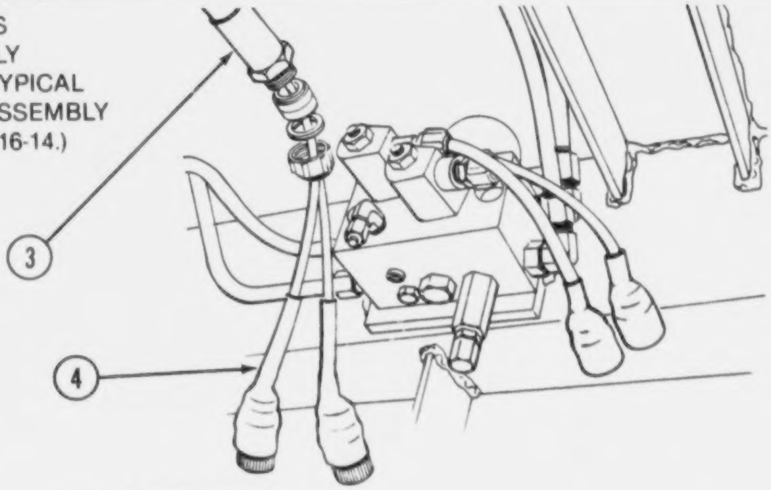
4. INSTALL RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A (4) IN CONDUIT (3). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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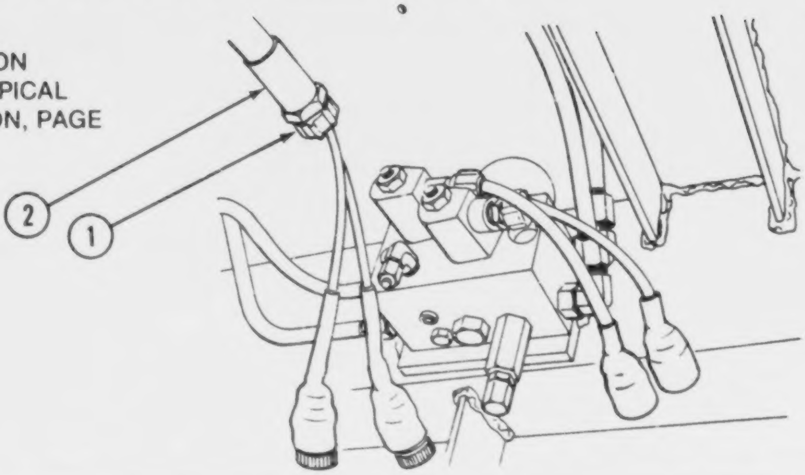
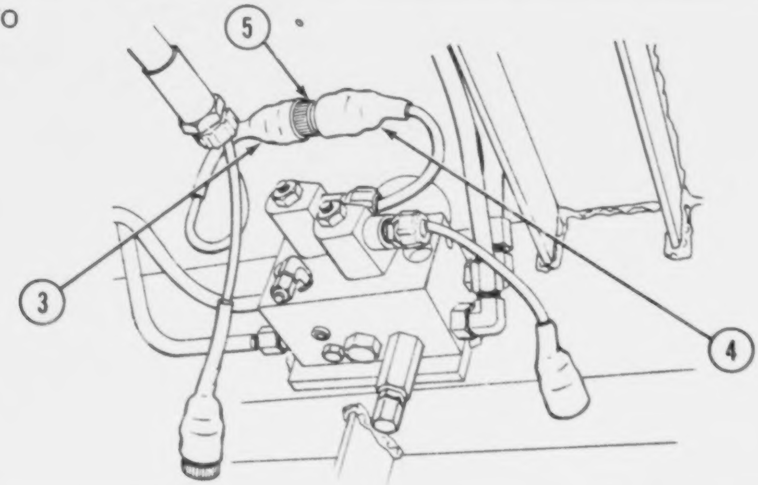
AD. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A INSTALLATION — Continued

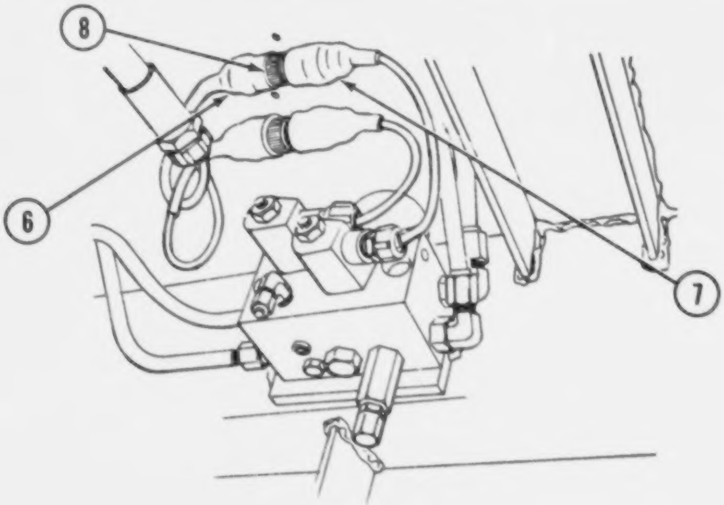
5. INSTALL CONNECTOR HUB (1) ON CONNECTOR BODY (2). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



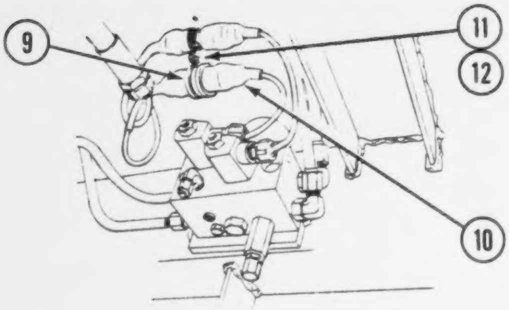
6. CONNECT CONNECTOR P44A (3) TO RECEPTACLE J44A (4), AND TURN CONNECTOR SLEEVE (5).



7. CONNECT CONNECTOR P44 (6) TO RECEPTACLE J44 (7), AND TURN CONNECTOR SLEEVE (8).



8. INSTALL P44A/J44A CONNECTION ON CHASSIS.
   - Place clamp (9) on P44A/J44A connection (10).
   - Install clamp (9) with P44A/J44A connection (10), screw (11), and new self-locking nut (12) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper.



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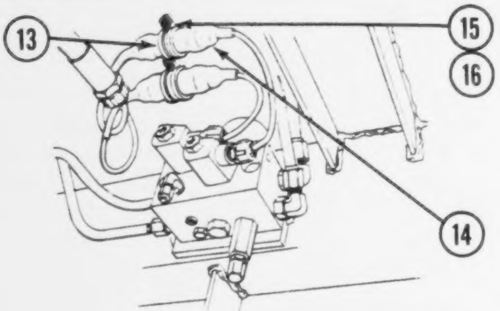
9. INSTALL P44/J44 CONNECTION ON CHASSIS.
   - Place clamp (13) on P44/J44 connection (14).
   - Install clamp (13) with P44/J44A connection (14), screw (15), and new self-locking nut (16) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 2 inch extension and ratchet handle. Use helper.



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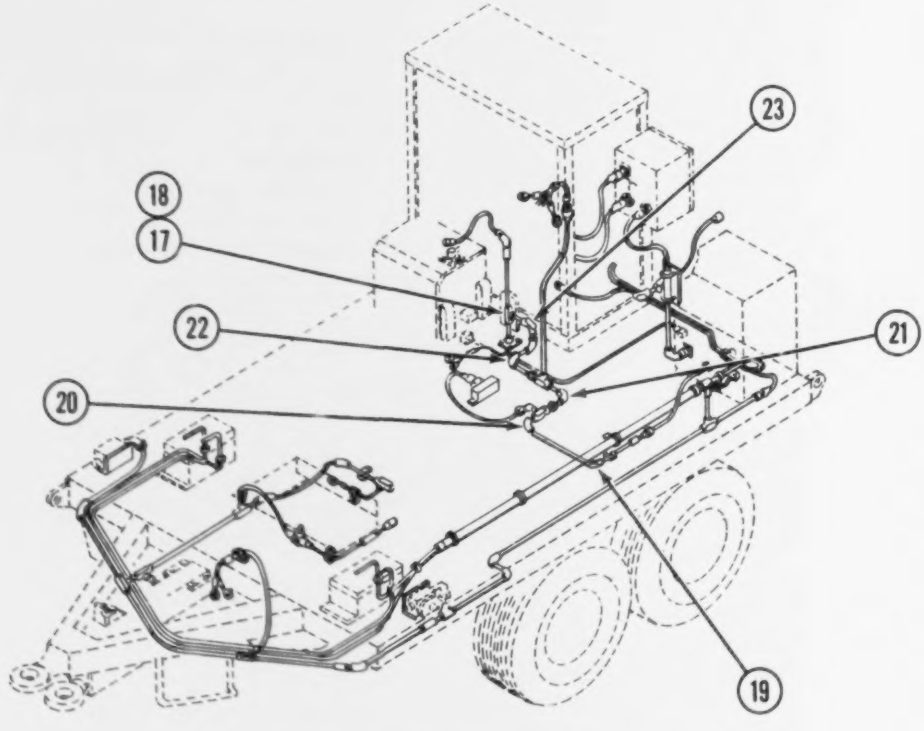
10. INSTALL CONDUIT FITTING COVERS (17) ON CONDUIT TEE (18), AND ON CONDUIT PULLING ELBOWS (19), (20), (21), (22), AND (23). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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AD. RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A INSTALLATION — Continued

11. INSTALL RIGHT MAGAZINE BYPASS SOLENOID VALVE CABLE ASSEMBLY P44/P44A LEADS ON TERMINAL BOARD 1TB AND POWER PANEL GROUND BUS. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17; POWER PANEL GROUND BUS, PAGE 11-111; AND FOLLOWING CABLE ASSEMBLY P44/P44A WIRE DESTINATION LIST.

CABLE ASSEMBLY P44/P44A WIRE DESTINATION LIST

NOTE

Connector A does not go to Terminal Board 1TB. Connector A Wire No. 2 goes to power panel ground bus.

From Sockets P44 and P44A	To Terminal Board 1TB	
	Wire and Terminal No.	Part
B	85	5
C	Open	Open

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AE. WIRE BUNDLE ASSEMBLY 1PB REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

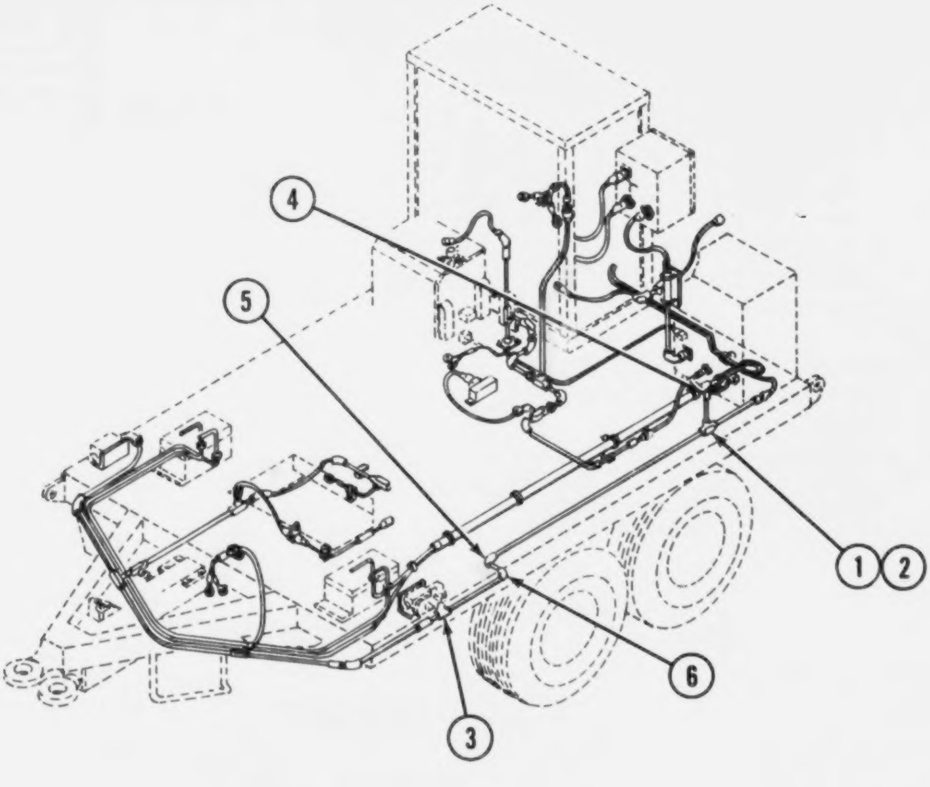
1. REMOVE WIRE BUNDLE ASSEMBLY 1PB LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING WIRE BUNDLE ASSEMBLY 1PB WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY 1PB WIRE DESTINATION LIST

From Terminal Board 1PB	To Terminal Board 1TB	
	Wire and Terminal No.	Part
Terminal	17	1
Terminal	50	2

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2) AND (3) AND FROM CONDUIT PULLING ELBOWS (4), (5), AND (6). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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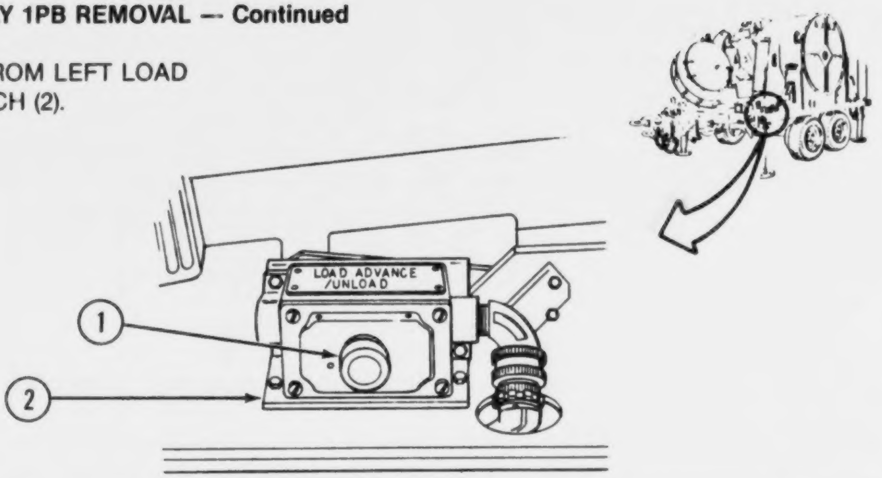
AE. WIRE BUNDLE ASSEMBLY 1PB REMOVAL — Continued

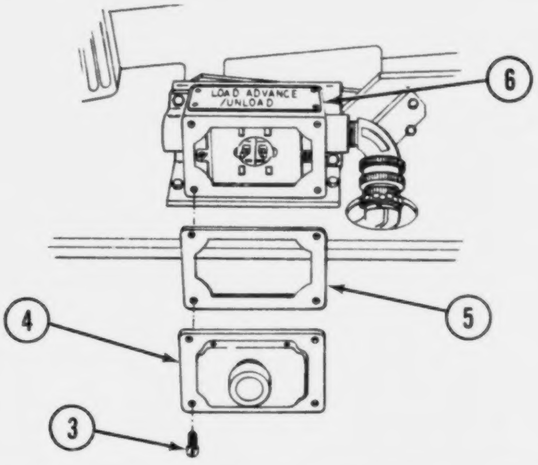
3. REMOVE DUST CAP (1) FROM LEFT LOAD ADVANCE/UNLOAD SWITCH (2).



WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

4. REMOVE PUSHBUTTON PLATE FROM PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Remove four screws (3), pushbutton plate (4), and gasket (5) from control station (6). Use 3/8 inch flat tip screwdriver. Discard gasket.
   - Clean gasket mating surfaces on pushbutton plate (4) and control station (6). Use putty knife, solvent, and rags.



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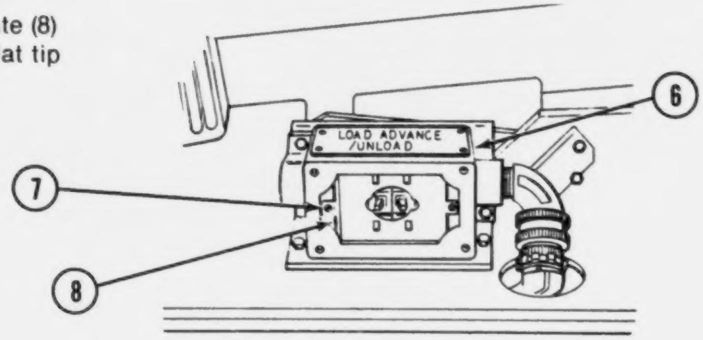
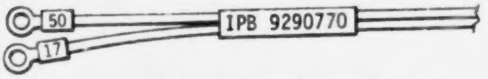
5. REMOVE SWITCH PLATE FROM PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Remove two screws (7) and switch plate (8) from control station (6). Use 1/4 inch flat tip screwdriver.



6. REMOVE TWO WIRE BUNDLE ASSEMBLY 1PB LEADS FROM SWITCH PLATE.
   - Tag and mark leads. (See following Wire Bundle Assembly 1PB Wire Number Designations.)
   - Remove two screws (9), brackets (10), and leads (11) from switch plate (8). Use 1/4 inch flat tip screwdriver.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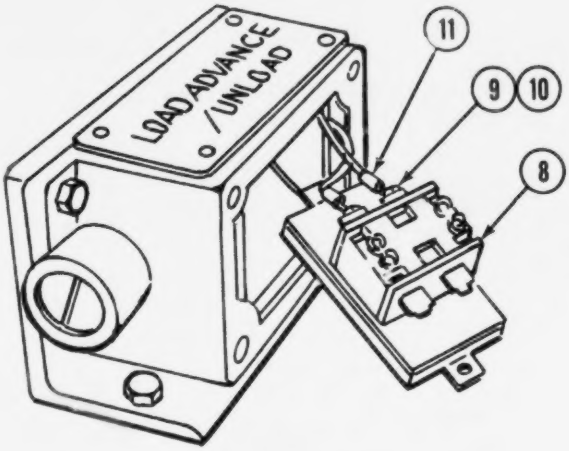
17
IPB 9290770

Wire Bundle Assembly 1PB
Wire Number Designations


LOAD ADVANCE
/UNLOAD
11
9
10
8

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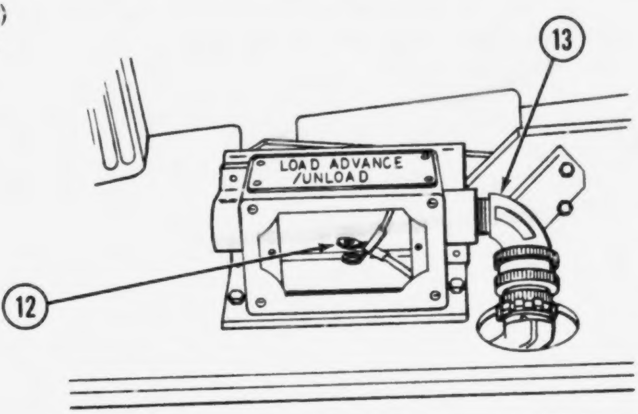
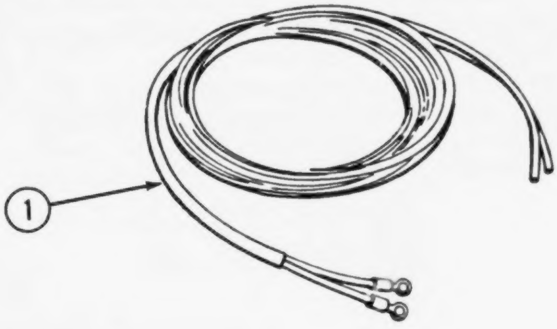
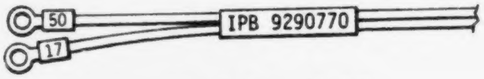
7. REMOVE WIRE BUNDLE ASSEMBLY 1PB (12) FROM CONDUIT (13). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)


13
LOAD ADVANCE
/UNLOAD
12

AF. WIRE BUNDLE ASSEMBLY 1PB INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON WIRE BUNDLE ASSEMBLY 1PB (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING WIRE BUNDLE ASSEMBLY 1PB WIRE BUNDLE DESIGNATIONS.




50
17
IPB 9290770

Wire Bundle Assembly 1PB
Wire Number Designations

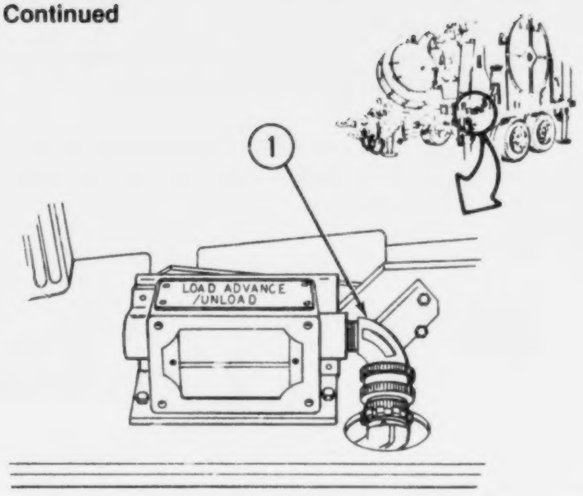
GO TO NEXT PAGE

AF. WIRE BUNDLE ASSEMBLY 1PB INSTALLATION — Continued

NOTE

If fish tape was not removed from conduit, go to step 3.

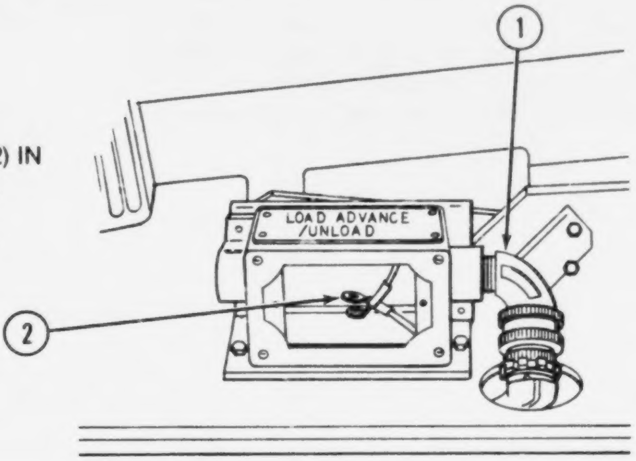
2. INSTALL FISH TAPE IN CONDUIT (1). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)


1
LOAD ADVANCE
/UNLOAD

NOTE

Wire bundle assembly 1PB requires two connector hubs.

3. INSTALL WIRE BUNDLE ASSEMBLY 1PB (2) IN CONDUIT (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)


1
2
LOAD ADVANCE
/UNLOAD

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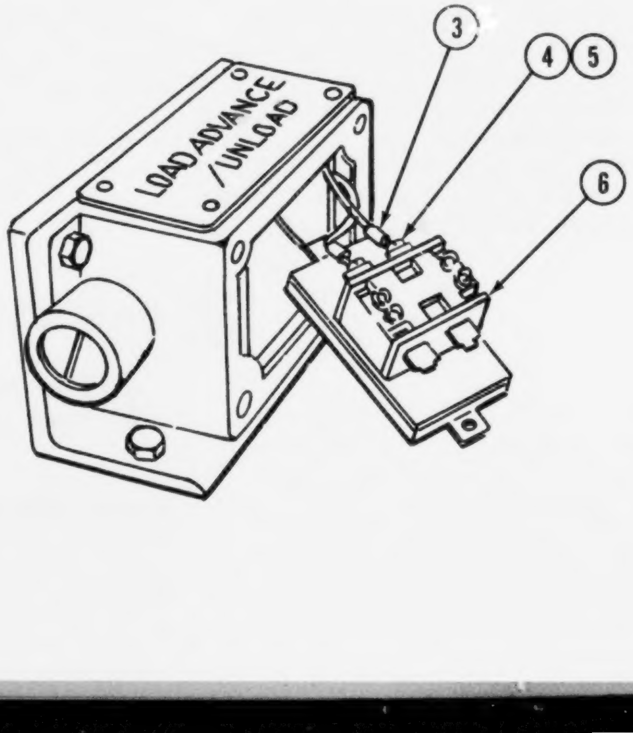
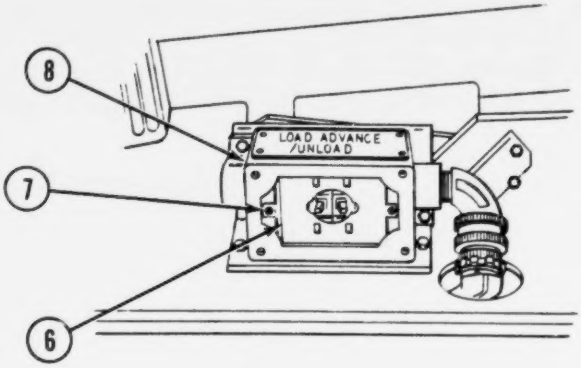
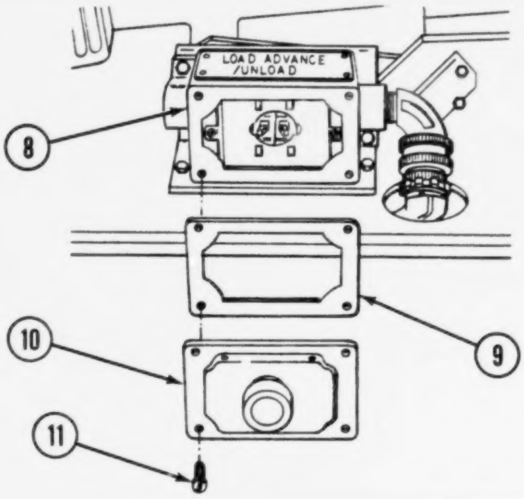
4. INSTALL TWO WIRE BUNDLE ASSEMBLY 1PB LEADS ON SWITCH PLATE.
   - Install two leads (3), brackets (4), and screws (5) on switch plate (6). Use 1/4 inch flat tip screwdriver.
   - Remove tags from leads.


3
4
5
6
LOAD ADVANCE
/UNLOAD

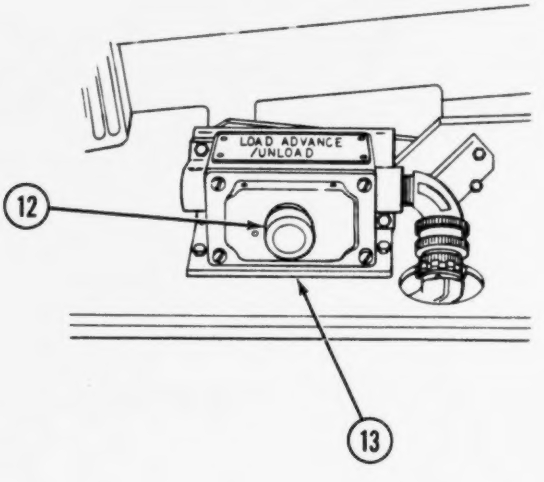
5. INSTALL SWITCH PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Install switch plate (6) and two screws (7) on control station (8). Use 1/4 inch flat tip screwdriver.


8
LOAD ADVANCE /UNLOAD
7
6

6. INSTALL PUSHBUTTON PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Apply adhesive sealant to both sides of new gasket (9).
   - Install gasket (9), pushbutton plate (10), and four screws (11) on control station (8). Use 3/8 inch flat tip screwdriver.


LOAD ADVANCE /UNLOAD
8
10
9
11

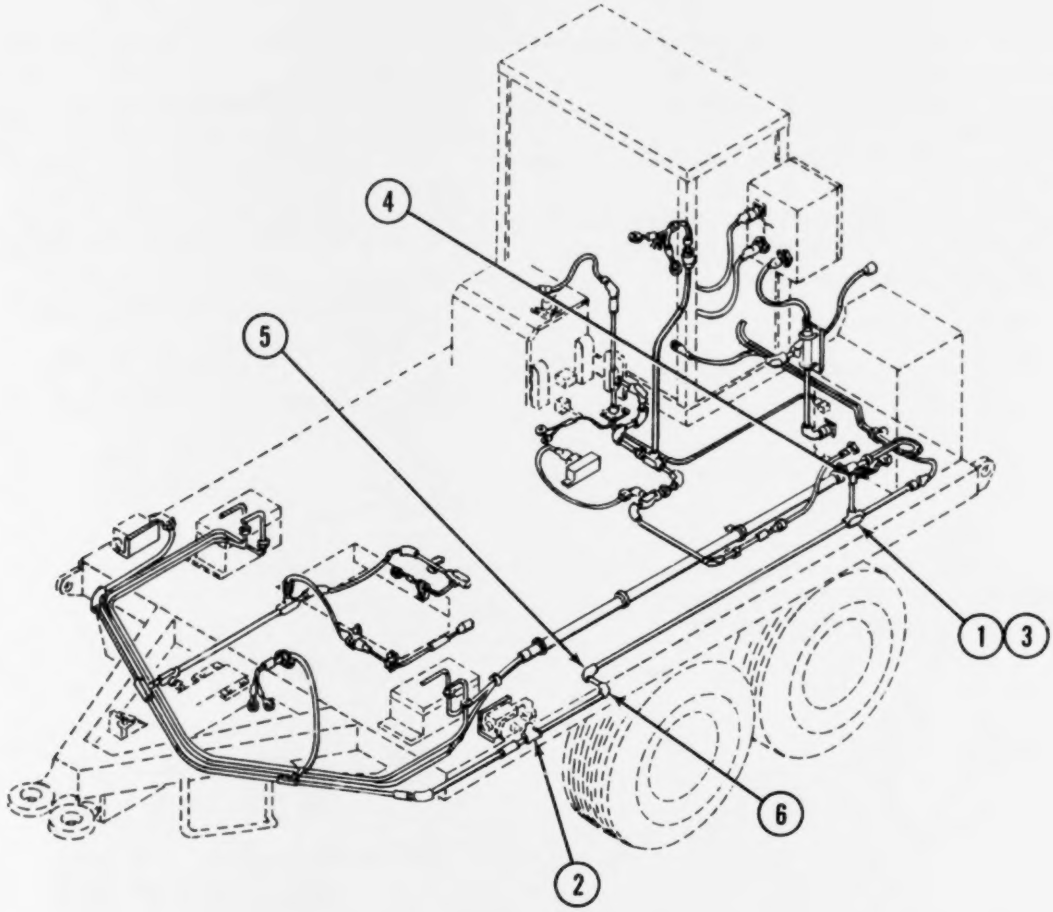
7. INSTALL DUST CAP (12) ON LOAD ADVANCE/UNLOAD SWITCH (13).


LOAD ADVANCE /UNLOAD
12
13

GO TO NEXT PAGE

AF. WIRE BUNDLE ASSEMBLY 1PB INSTALLATION — Continued

8. INSTALL CONDUIT FITTING COVERS (1) ON CONDUIT TEES (2) AND (3) AND ON CONDUIT PULLING ELBOWS (4), (5), AND (6). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



9. INSTALL WIRE BUNDLE ASSEMBLY 1PB LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING WIRE BUNDLE ASSEMBLY 1PB WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY 1PB WIRE DESTINATION LIST

From Terminal Board 1PB	To Terminal Board 1TB	
	Wire and Terminal No.	Part
Terminal	17	1
Terminal	50	2

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AG. WIRE BUNDLE ASSEMBLY 2PB REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E./ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

GO TO NEXT PAGE

AG. WIRE BUNDLE ASSEMBLY 2PB REMOVAL — Continued

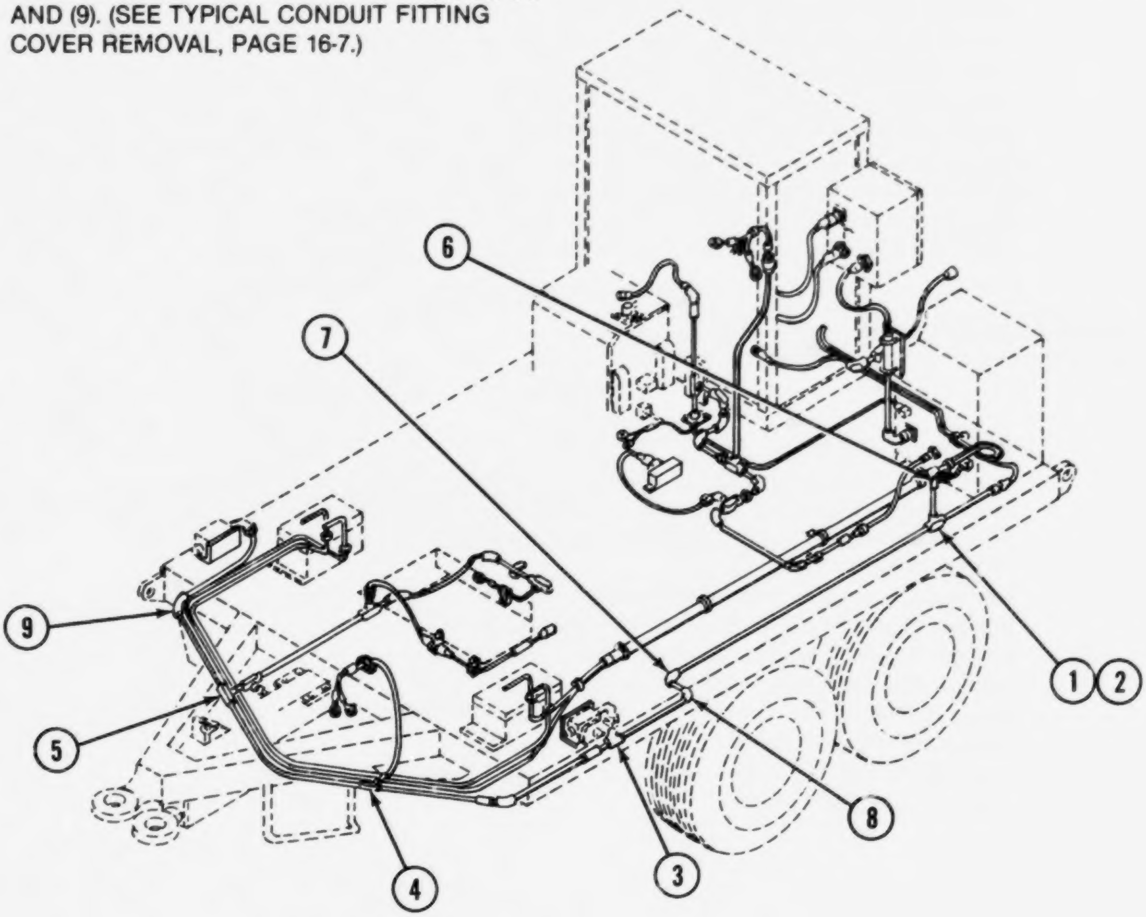
1. REMOVE WIRE BUNDLE ASSEMBLY 2PB LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING WIRE BUNDLE ASSEMBLY 2PB WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY 2PB WIRE DESTINATION LIST

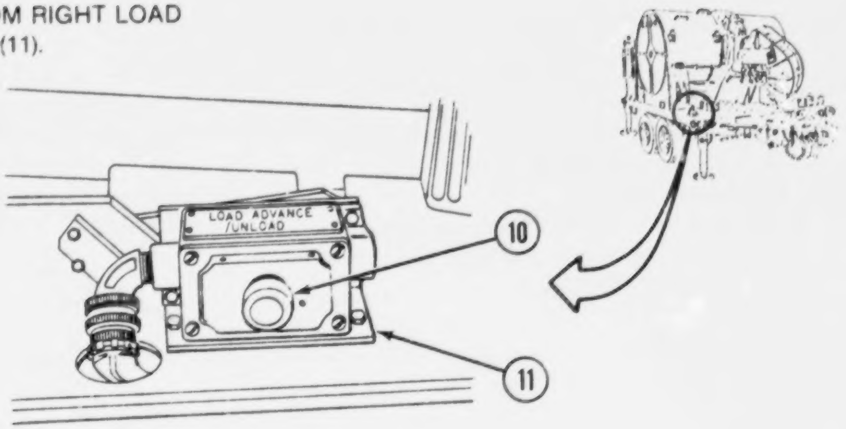
From Terminal Board 1PB	To Terminal Board 1TB	
	Wire and Terminal No.	Part
Terminal	17	1
Terminal	49	2

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), (4), AND (5) AND FROM CONDUIT PULLING ELBOWS (6), (7), (8), AND (9). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



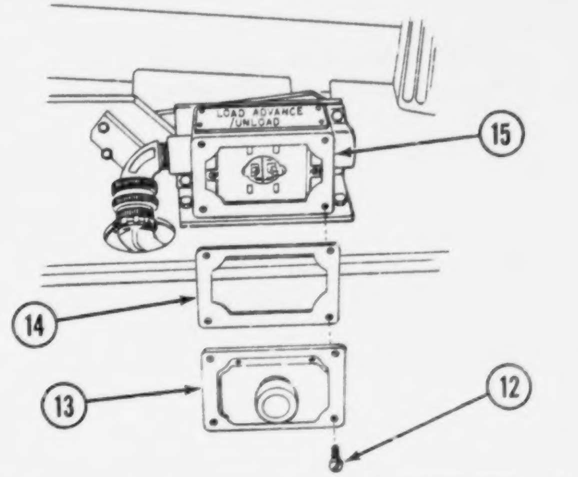
3. REMOVE DUST CAP (10) FROM RIGHT LOAD ADVANCE/UNLOAD SWITCH (11).


LOAD ADVANCE /UNLOAD
10
11

WARNING

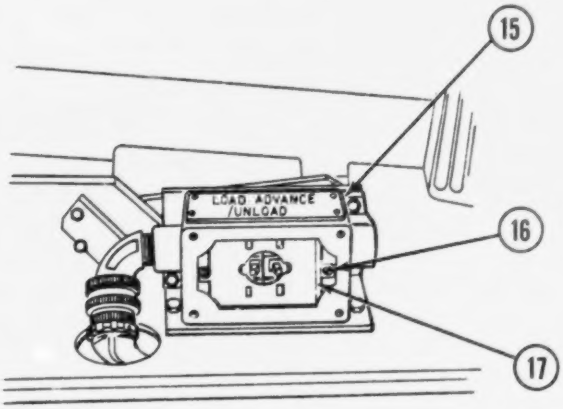
Cleaning solvent can explode and can burn. Read warning on front page of this manual.

4. REMOVE PUSHBUTTON PLATE FROM PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Remove four screws (12), pushbutton plate (13), and gasket (14) from control station (15). Use 3/8 inch flat tip screwdriver. Discard gasket.
   - Clean gasket mating surfaces on pushbutton plate (13) and control station (15). Use putty knife, solvent, and rags.


LOAD ADVANCE /UNLOAD
15
14
13
12

---

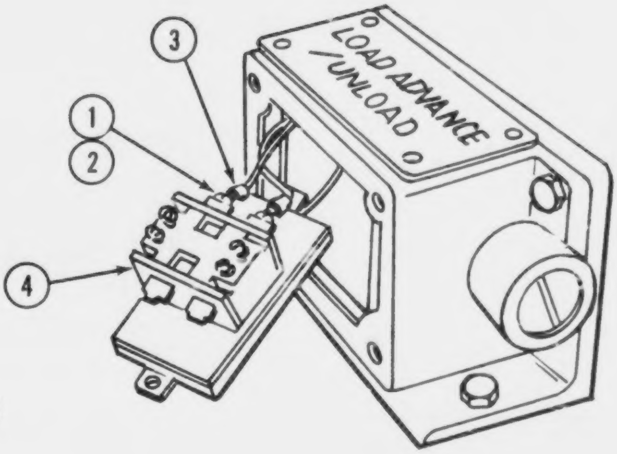
5. REMOVE SWITCH PLATE FROM PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Remove two screws (16) and switch plate (17) from control station (15). Use 1/4 inch flat tip screwdriver.

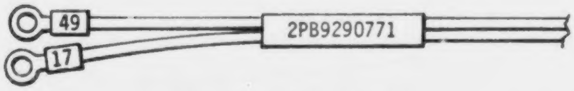

15
LOAD ADVANCE /UNLOAD
16
17

GO TO NEXT PAGE

AG. WIRE BUNDLE ASSEMBLY 2PB REMOVAL — Continued

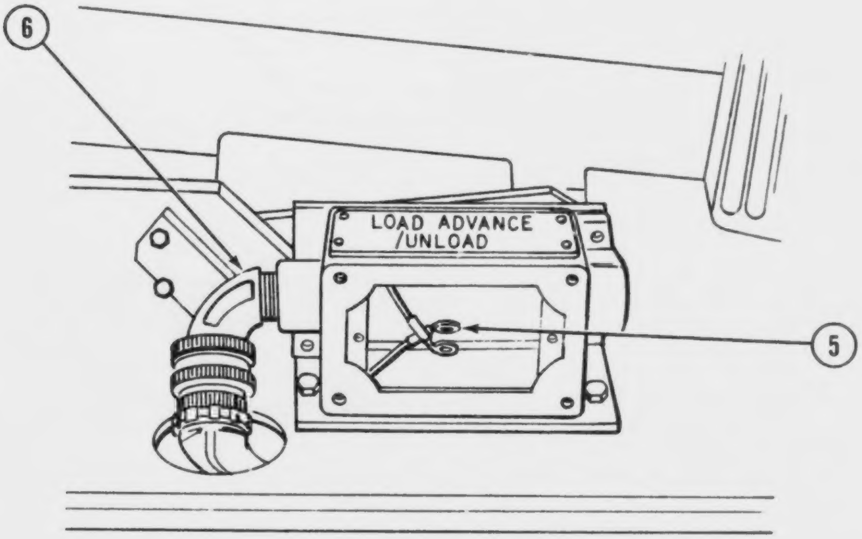
6. REMOVE TWO WIRE BUNDLE ASSEMBLY 2PB LEADS FROM SWITCH PLATE.
   - Tag and mark leads. (See following Wire Bundle Assembly 2PB Wire Number Designations.)
   - Remove two screws (1), brackets (2), and leads (3) from switch plate (4). Use 1/4 inch flat tip screwdriver.


3
1
2
4
LOAD ADVANCE
/UNLOAD

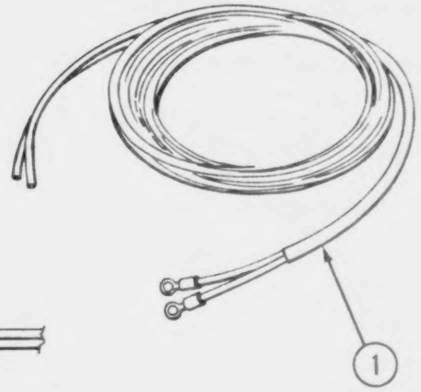

49
17
2PB9290771

Wire Bundle Assembly 2PB
Wire Number Designations

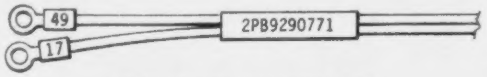
7. REMOVE WIRE BUNDLE ASSEMBLY 2PB (5) FROM CONDUIT (6). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)


6
LOAD ADVANCE
/UNLOAD
5

AH. WIRE BUNDLE ASSEMBLY 2PB INSTALLATION



1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON WIRE BUNDLE ASSEMBLY 2PB (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING WIRE BUNDLE ASSEMBLY 2PB WIRE NUMBER DESIGNATIONS.)

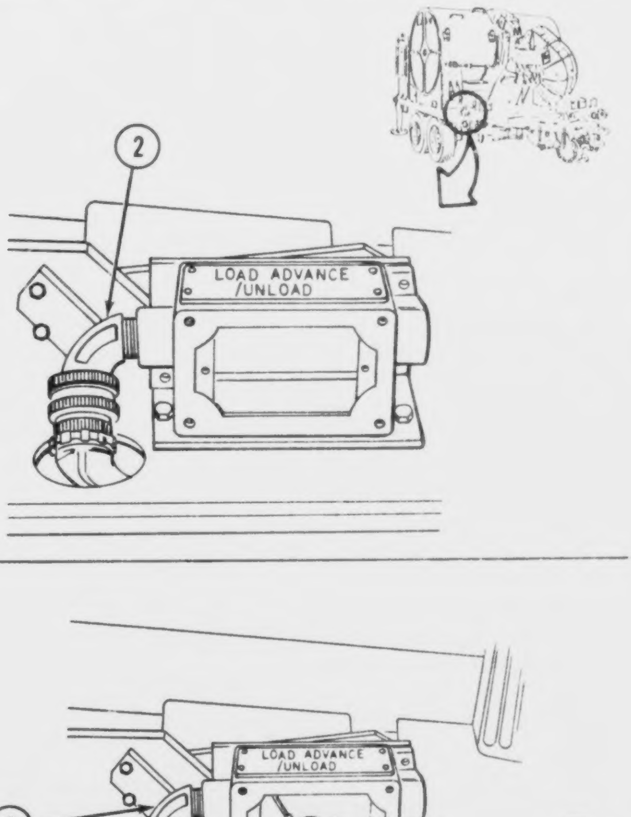


Wire Bundle Assembly 2PB
Wire Number Designations

NOTE

If fish tape was not removed from conduit, go to step 3.

2. INSTALL FISH TAPE IN CONDUIT (2). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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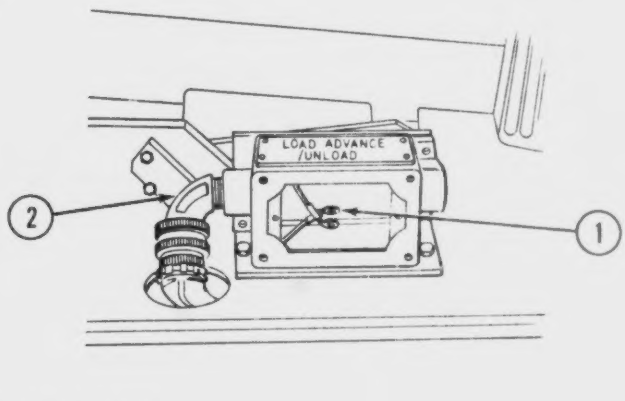
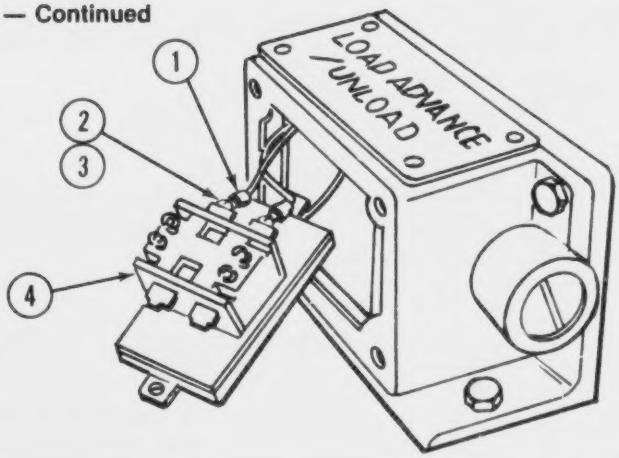
3. INSTALL WIRE BUNDLE ASSEMBLY 2PB (1) IN CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



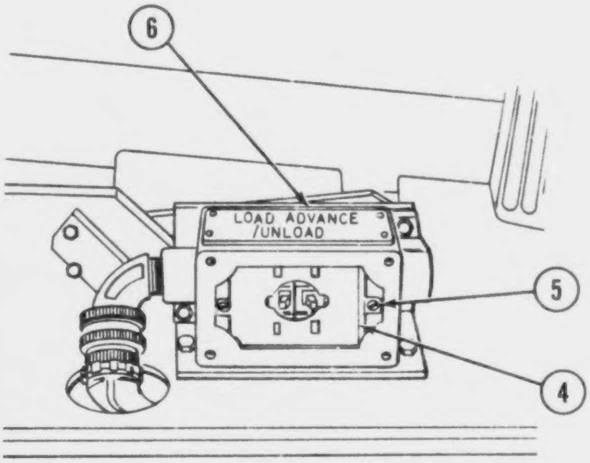
GO TO NEXT PAGE

AH. WIRE BUNDLE ASSEMBLY 2PB INSTALLATION — Continued

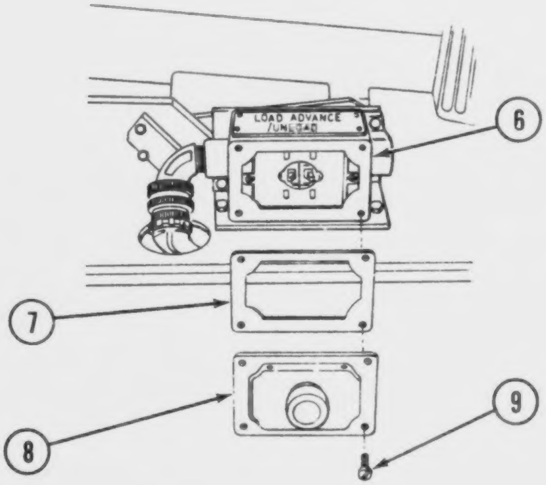
4. INSTALL TWO WIRE BUNDLE ASSEMBLY 2PB LEADS ON SWITCH PLATE.
   - Install two leads (1), brackets (2), and screws (3) on switch plate (4). Use 1/4 inch flat tip screwdriver.
   - Remove tags from leads.


1
2
3
4
LOAD ADVANCE
/UNLOAD

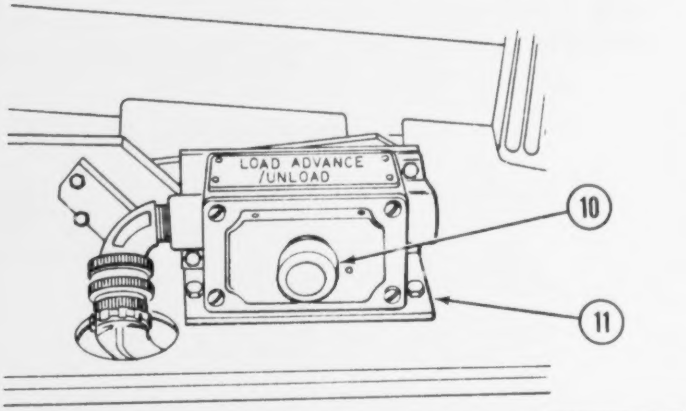
5. INSTALL SWITCH PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Install switch plate (4) and two screws (5) on control station (6). Use 1/4 inch flat tip screwdriver.


6
LOAD ADVANCE
/UNLOAD
5
4

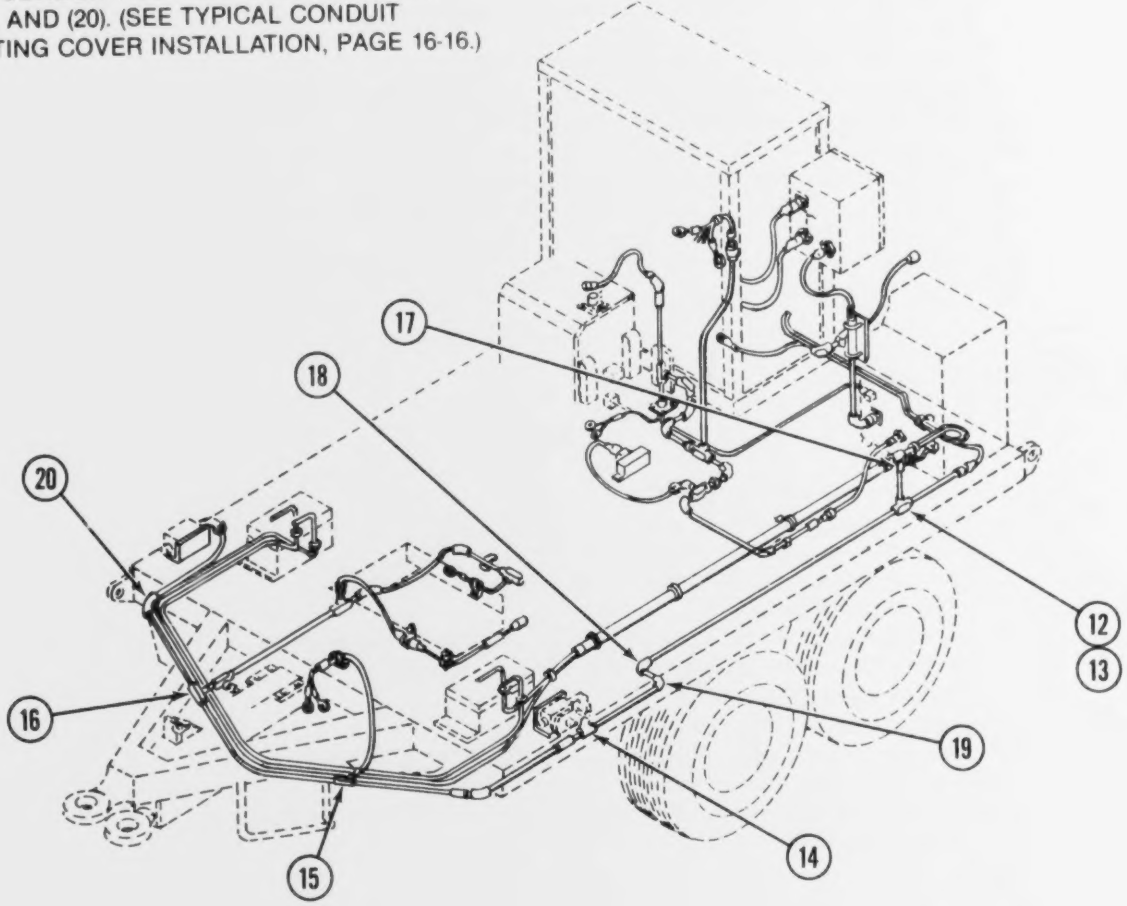
6. INSTALL PUSHBUTTON PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Apply adhesive sealant to both sides of new gasket (7).
   - Install gasket (7), pushbutton plate (8), and four screws (9) on control station (6). Use 3/8 inch flat tip screwdriver.


LOAD ADVANCE
/UNLOAD
6
7
8
9

7. INSTALL DUST CAP (10) ON LOAD ADVANCE/UNLOAD SWITCH (11).


LOAD ADVANCE
/UNLOAD
10
11

8. INSTALL CONDUIT FITTING COVERS (12) ON CONDUIT TEES (13), (14), (15), AND (16) AND ON CONDUIT PULLING ELBOWS (17), (18), (19), AND (20). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)


17
18
20
16
15
14
19
12
13

GO TO NEXT PAGE

AH. WIRE BUNDLE ASSEMBLY 2PB INSTALLATION — Continued

9. INSTALL WIRE BUNDLE ASSEMBLY 2PB LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING WIRE BUNDLE ASSEMBLY 2PB WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY 2PB WIRE DESTINATION LIST

From Terminal Board 2PB	To Terminal Board 1TB	
	Wire and Terminal No.	Part
Terminal	17	1
Terminal	49	2

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AI. WIRE BUNDLE ASSEMBLY JB3 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly. Page 11-195.)

1. REMOVE WIRE BUNDLE ASSEMBLY JB3 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB3 WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY JB3 WIRE DESTINATION LIST

From JB3 Terminal	To Terminal Board 1TB	
	Wire and Terminal No.	Part
2	2	6
95	95	6
**	*	4
68	68	4
2	2	4
**	*	4
65	65	4
2	2	4
**	*	4
60	60	3
2	2	3
55	55	5
56	56	5
**	*	4
61	61	3
2	2	3
2	2	6
94	94	6
**	*	4
66	66	4
17	17	1
2	2	4
**	*	4
64	64	4
2	2	4
**	*	4
63	63	4
2	2	4
**	*	3
59	59	3
2	2	3
**	*	3
58	58	3
54	54	4
2	2	3
2	2	5

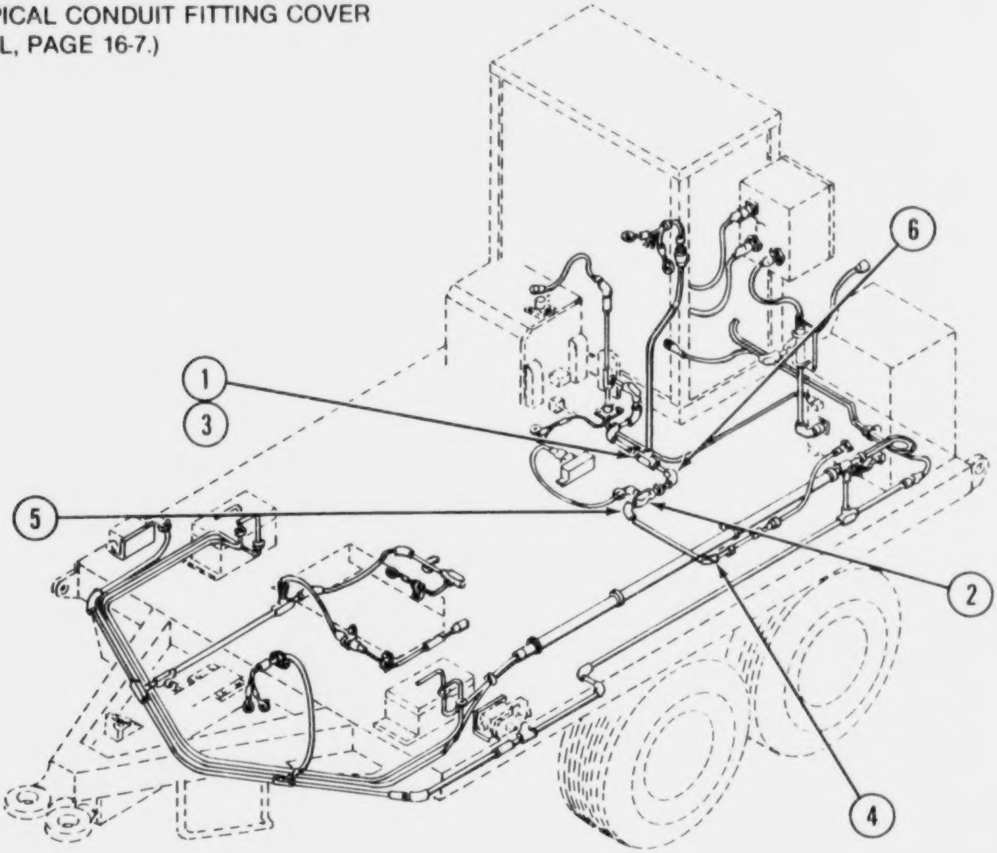
*No number listed on electrical enclosure terminals

**Shield (SHLD)

GO TO NEXT PAGE

AI. WIRE BUNDLE ASSEMBLY JB3 REMOVAL — Continued

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2) AND (3) AND FROM CONDUIT PULLING ELBOWS (4), (5), AND (6). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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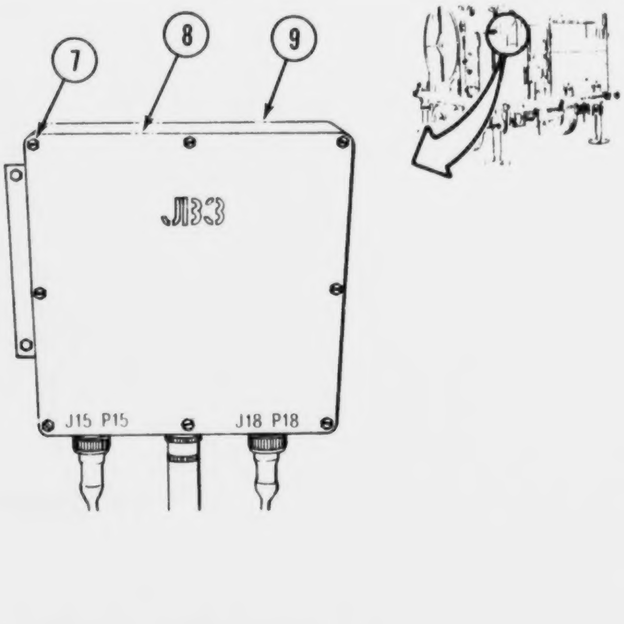
3. REMOVE JUNCTION BOX COVER FROM JUNCTION BOX JB3 ASSEMBLY.
   - Remove eight screws (7) and junction box cover (8) from JB3 (9). Use 5/16 inch flat tip screwdriver.

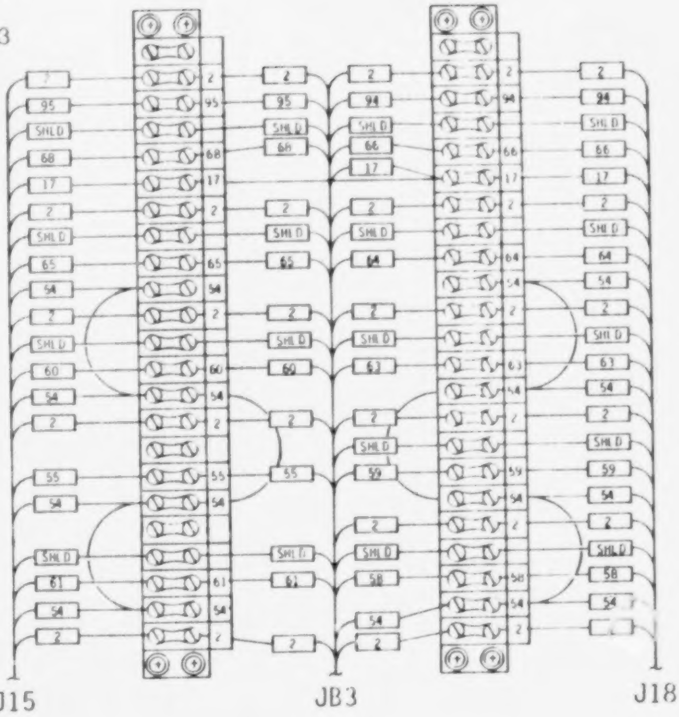


NOTE

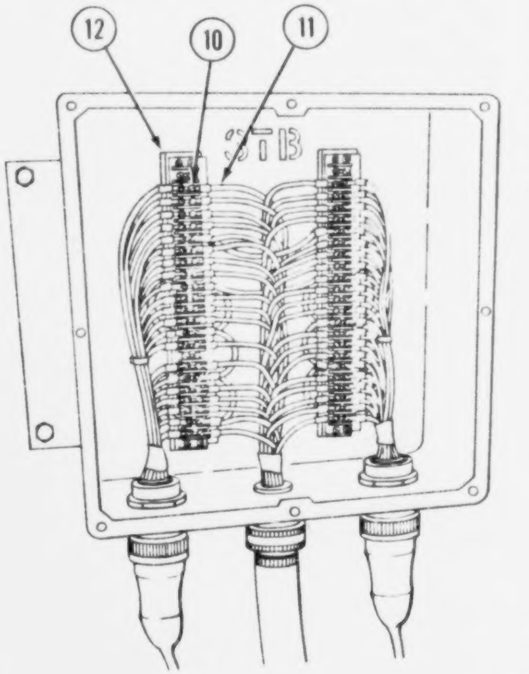
Thirty five JB3 wire bundle leads are removed the same way. Step 4 shows Lead 2. Jumper leads are not removed.

4. REMOVE 35 JB3 WIRE BUNDLE LEADS FROM TERMINAL BOARD 3TB.
   - Tag and mark leads. (See following Junction Box JB3 Wiring Diagram.)
   - Remove screw (10) and Lead 2 (11) from Terminal Board 3TB (12). Use 1/4 inch flat tip screwdriver.
   - Repeat above removal step for other 34 JB3 wire bundle leads.

3TB


2
95
SHLD
68
17
2
SHLD
65
54
2
SHLD
60
54
2
55
54
SHLD
61
54
2
2
95
68
17
2
65
54
2
60
54
2
55
54
61
54
2
2
95
SHLD
68
2
SHLD
65
2
SHLD
60
2
55
SHLD
61
2
2
94
SHLD
66
17
2
SHLD
64
2
SHLD
63
2
SHLD
59
2
SHLD
58
54
2
2
94
66
17
2
64
54
2
63
54
2
59
54
2
58
54
2
2
94
SHLD
66
17
2
SHLD
64
54
2
SHLD
63
54
2
SHLD
59
54
2
SHLD
58
54
J15
JB3
J18

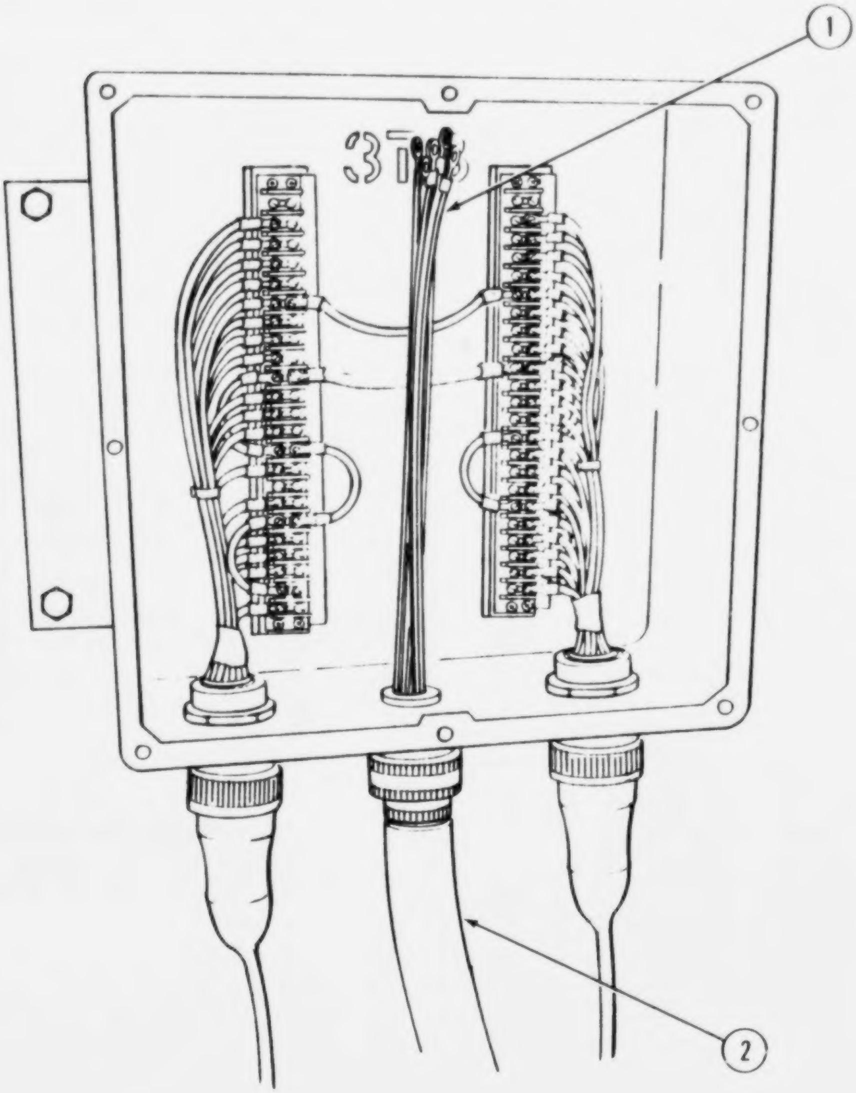
Junction Box JB3 Wiring Diagram



GO TO NEXT PAGE

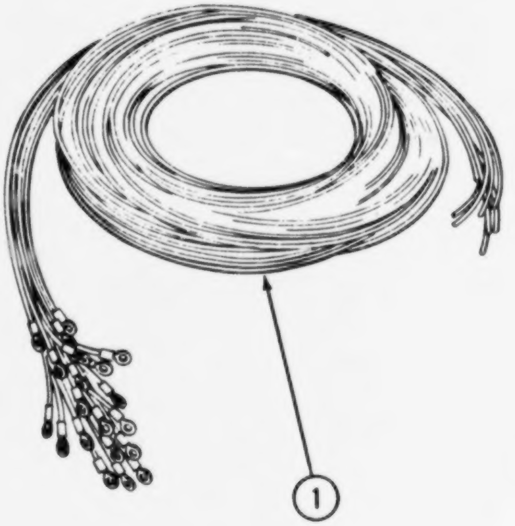
AI. WIRE BUNDLE ASSEMBLY JB3 REMOVAL — Continued

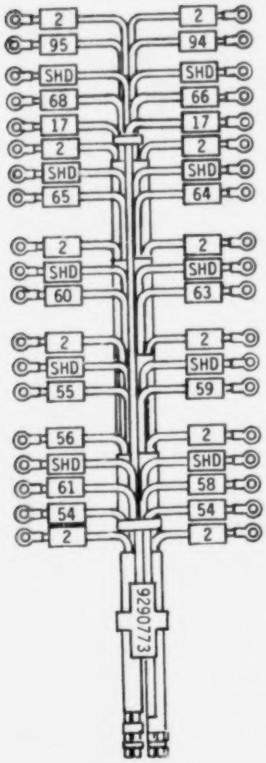
5. REMOVE WIRE BUNDLE ASSEMBLY JB3 (1) FROM CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



AJ. WIRE BUNDLE ASSEMBLY JB3 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON WIRE BUNDLE ASSEMBLY JB3 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB3 WIRE NUMBER DESIGNATIONS.)




2
95
SHD
68
17
2
SHD
65
2
SHD
60
2
SHD
55
56
SHD
61
54
2
2
94
SHD
66
17
2
SHD
64
2
SHD
63
2
SHD
59
2
SHD
58
54
2
9290773

Wire Bundle Assembly JB3
Wire Number Designations

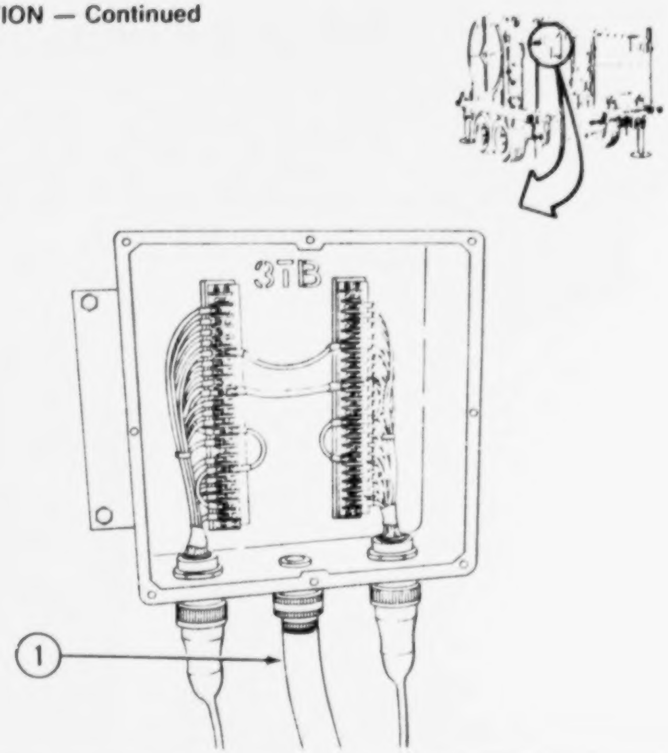
GO TO NEXT PAGE

AJ. WIRE BUNDLE ASSEMBLY JB3 INSTALLATION — Continued

NOTE

If fish tape was not removed from conduit, go to step 3.

2. INSTALL FISH TAPE IN CONDUIT (1). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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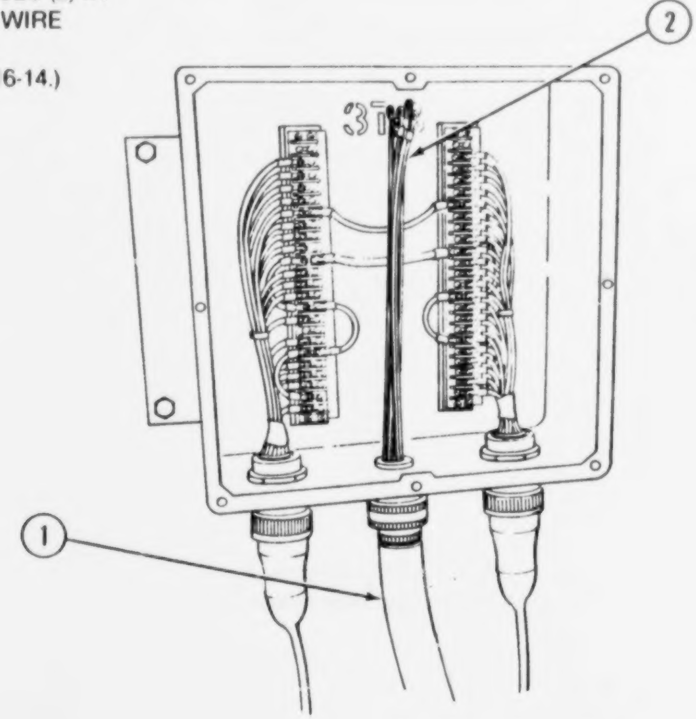
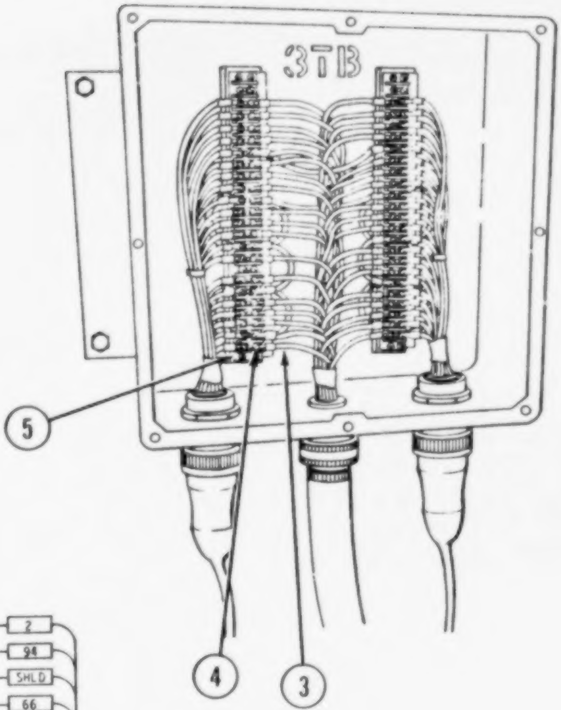
3. INSTALL WIRE BUNDLE ASSEMBLY JB3 (2) IN CONDUIT (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



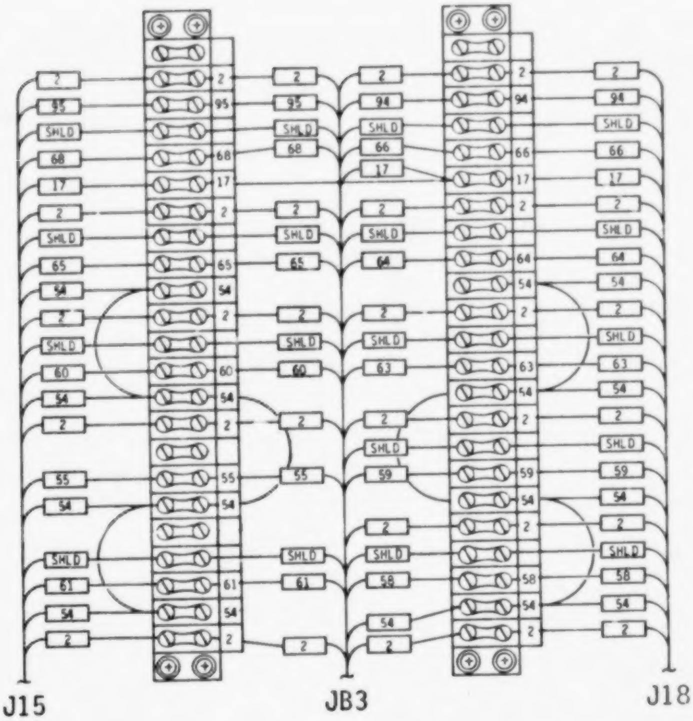
NOTE

Thirty five JB3 wire bundle leads are installed the same way. Step 4 shows Lead 2. Jumper leads are not removed.

4. INSTALL 35 JB3 WIRE BUNDLE LEADS ON TERMINAL BOARD 3TB.
   - Install Lead 2 (3) and screw (4) on Terminal Board 3TB (5). Use 1/4 inch flat tip screwdriver.
   - Repeat above installation step for other 34 JB3 wire bundle leads. (See following Junction Box JB3 Wiring Diagram.)



3TB

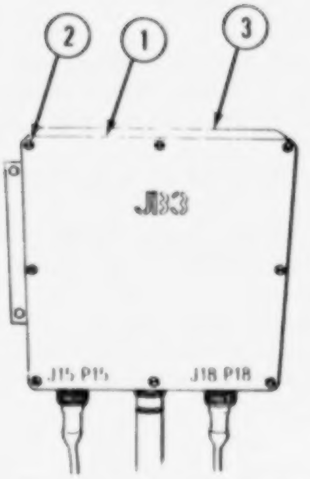

2
95
SHLD
68
17
2
SHLD
65
54
2
SHLD
60
54
2
55
54
SHLD
61
54
2
94
66
64
63
59
58
J15
JB3
J18

Junction Box JB3 Wiring Diagram

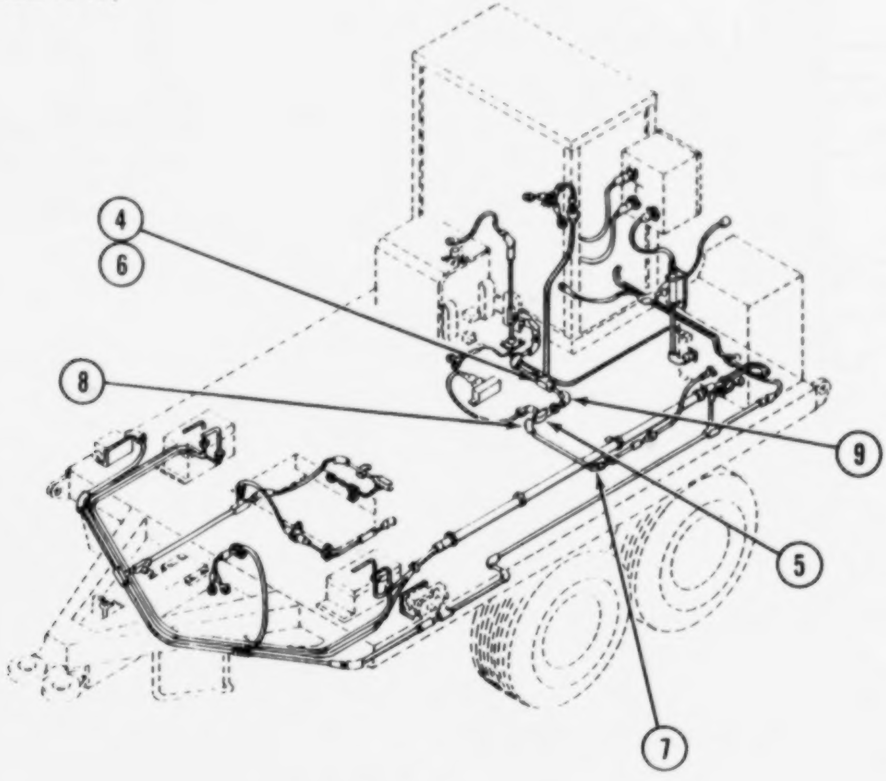
GO TO NEXT PAGE

AJ. WIRE BUNDLE ASSEMBLY JB3 INSTALLATION — Continued

5. INSTALL JUNCTION BOX COVER ON JUNCTION BOX JB3 ASSEMBLY.
   - Install cover (1) and eight screws (2) on Junction Box JB3 (3). Use 5/16 inch flat tip screwdriver.



6. INSTALL CONDUIT FITTING COVERS (4) ON CONDUIT TEES (5) AND (6), AND CONDUIT PULLING ELBOWS (7), (8), AND (9). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



7. INSTALL WIRE BUNDLE ASSEMBLY JB3 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB3 WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY JB3 WIRE DESTINATION LIST

From JB3 Terminal	To Terminal Board 1TB	
	Wire and Terminal No.	Part
2	2	6
95	95	6
**	*	4
68	68	4
2	2	4
**	*	4
65	65	4
2	2	4
**	*	4
60	60	3
2	2	3
55	55	5
56	56	5
**	*	4
61	61	3
2	2	3
2	2	6
94	94	6
**	*	4
66	66	4
17	17	1
2	2	4
**	*	4
64	64	4
2	2	4
**	*	4
63	63	4
2	2	4
**	*	3
59	59	3
2	2	3
**	*	3
58	58	3
54	54	4
2	2	3
2	2	5

*No number listed on electrical enclosure terminals

**Shield (SHLD)

GO TO NEXT PAGE

AJ. WIRE BUNDLE ASSEMBLY JB3 INSTALLATION — Continued

NOTE

FOLLOW-ON MAINTENANCE:
Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AK. WIRE BUNDLE ASSEMBLY JB4 REMOVAL

NOTE

PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Remove Cover Plate. (See TM 9-1095-205-20.)

1. REMOVE WIRE BUNDLE ASSEMBLY JB4 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB4 WIRE DESTINATION LIST.)

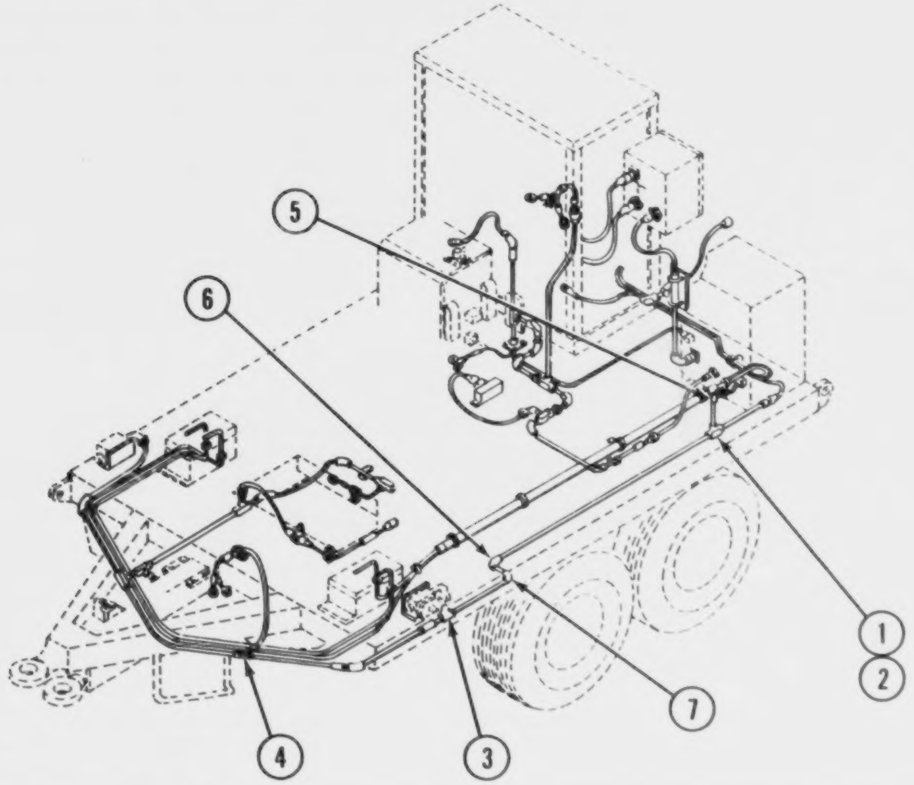
WIRE BUNDLE ASSEMBLY JB4 WIRE DESTINATION LIST

From JB1 Terminal	To Terminal Board 1TB	
	Wire and Terminal No.	Part
39	39	2
40	40	2
41	41	2
42	42	2
43	43	2
44	44	2
45	45	2
46	46	2
47	47	2
48	48	2
24	24	1
1	Spare	Spare
2	Spare	Spare
3	Spare	Spare
4	Spare	Spare
5	Spare	Spare
2	2	3
6	6	1
25	25	1
26	26	1
27	27	1
28	28	1
29	29	1
30	30	2
31	31	2
33	33	2
34	34	2
35	35	2
36	36	2
37	37	2
38	38	2

GO TO NEXT PAGE

AK. WIRE BUNDLE ASSEMBLY JB4 INSTALLATION — Continued

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), AND (4) AND FROM CONDUIT PULLING ELBOWS (5), (6), AND (7). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



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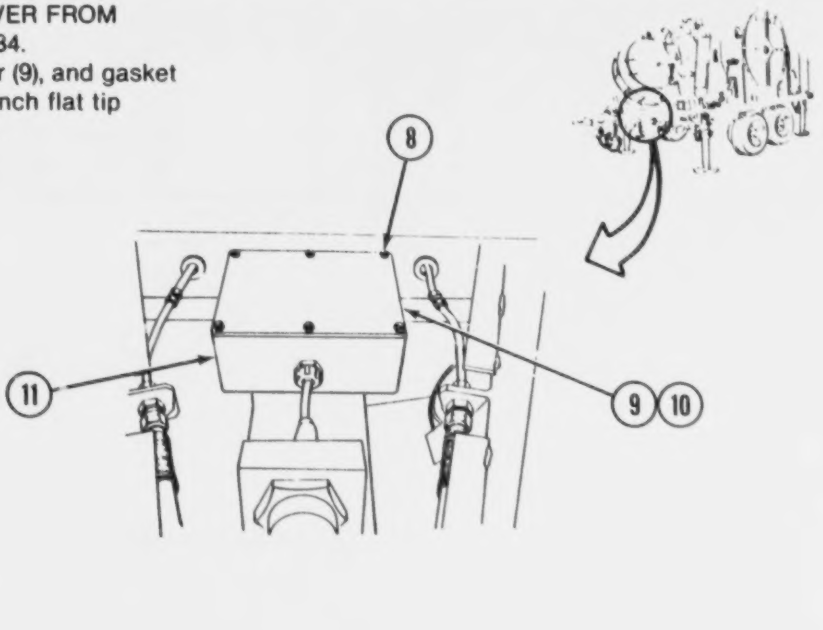
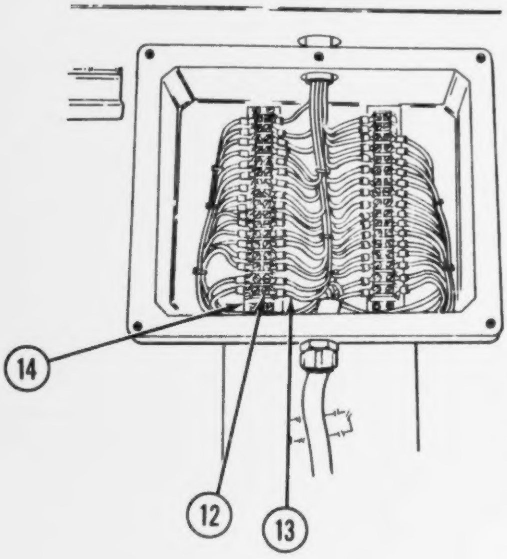
3. REMOVE JUNCTION BOX COVER FROM JUNCTION BOX ASSEMBLY JB4.
   - Remove six screws (8), cover (9), and gasket (10) from JB4 (11). Use 5/16 inch flat tip screwdriver. Discard gasket.

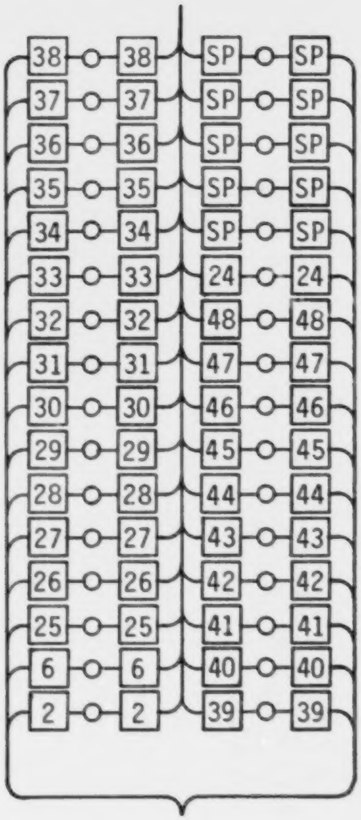


NOTE

Thirty two JB4 wire bundle leads are removed the same way. Step 4 shows Lead 2.

4. REMOVE 32 WIRE BUNDLE ASSEMBLY JB4 LEADS FROM TERMINAL BOARD 4TB.
   - Tag and mark leads. (See following Junction Box JB4 Wiring Diagram.)
   - Remove screw (12) and Lead 2 (13) from Terminal Board 4TB (14). Use 1/4 inch flat tip screwdriver.
   - Repeat above removal step for other 31 JB4 wire bundle leads.



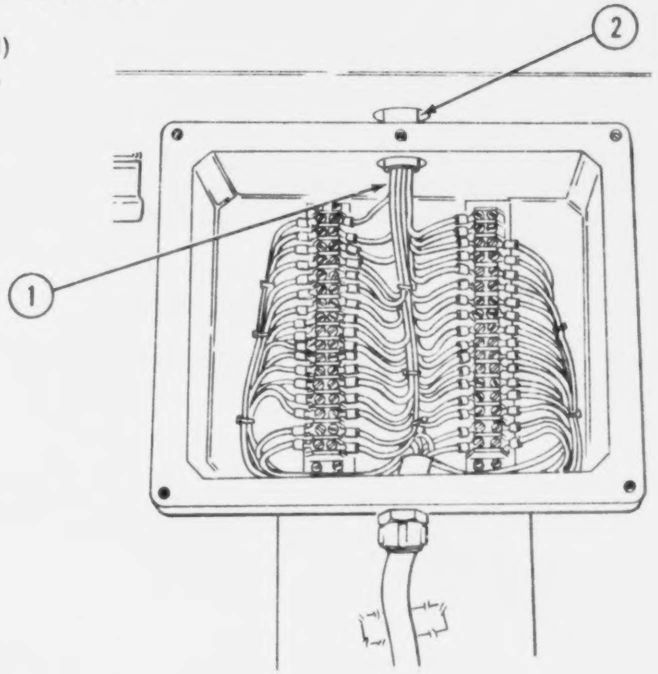

38 38 SP SP
37 37 SP SP
36 36 SP SP
35 35 SP SP
34 34 SP SP
33 33 24 24
32 32 48 48
31 31 47 47
30 30 46 46
29 29 45 45
28 28 44 44
27 27 43 43
26 26 42 42
25 25 41 41
6 6 40 40
2 2 39 39

Junction Box JB4 Wiring Diagram

GO TO NEXT PAGE

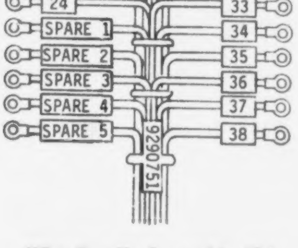
AK. WIRE BUNDLE ASSEMBLY JB4 REMOVAL — Continued

5. REMOVE WIRE BUNDLE ASSEMBLY JB4 (1) FROM CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



AL. WIRE BUNDLE ASSEMBLY JB4 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON WIRE BUNDLE ASSEMBLY JB4 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB4 WIRE NUMBER DESIGNATIONS.)

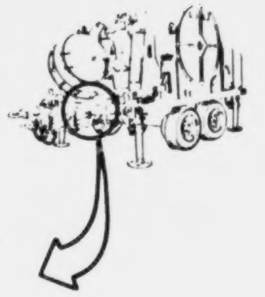

39
40
41
42
43
44
45
46
47
48
24
SPARE 1
SPARE 2
SPARE 3
SPARE 4
SPARE 5
2
6
25
26
27
28
29
30
31
32
33
34
35
36
37
38
9290751

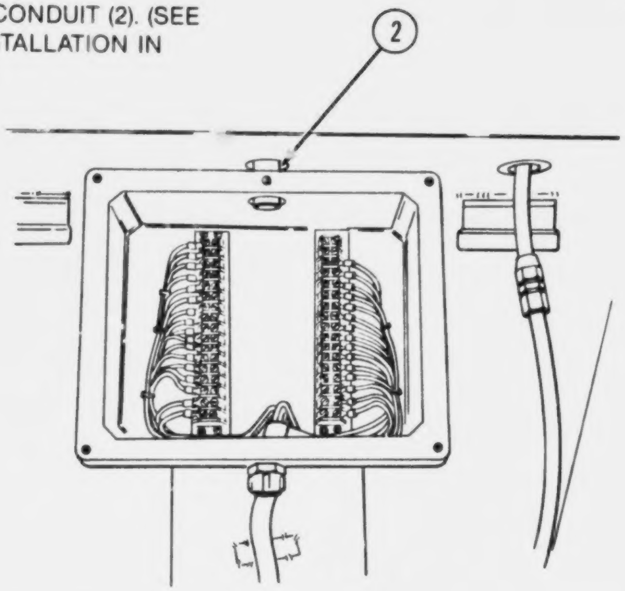
Wire Bundle Assembly JB4
Wire Number Designations

NOTE

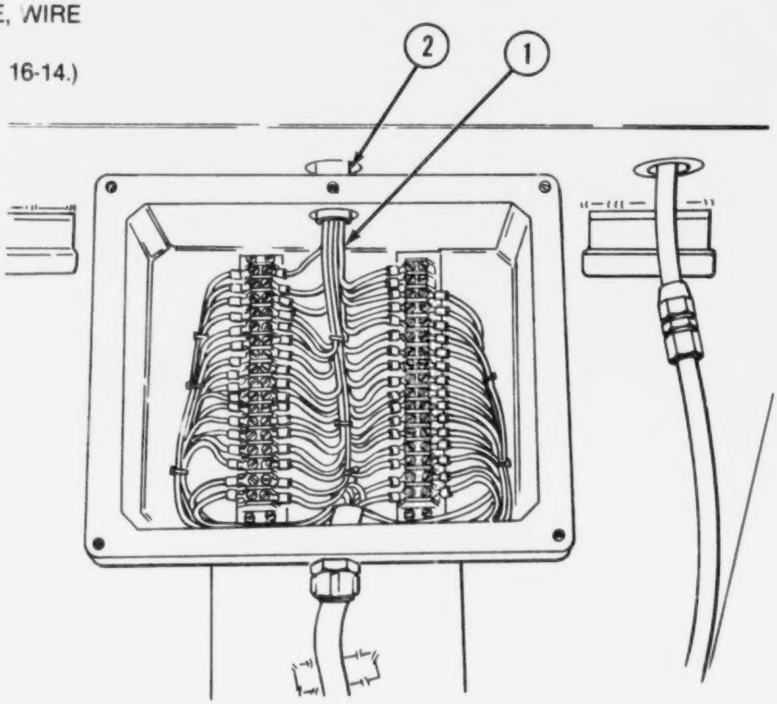
If fish tape was not removed from conduit, go to step 3.

2. INSTALL FISH TAPE IN CONDUIT (2). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)





3. INSTALL WIRE BUNDLE ASSEMBLY JB4 (1) IN CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



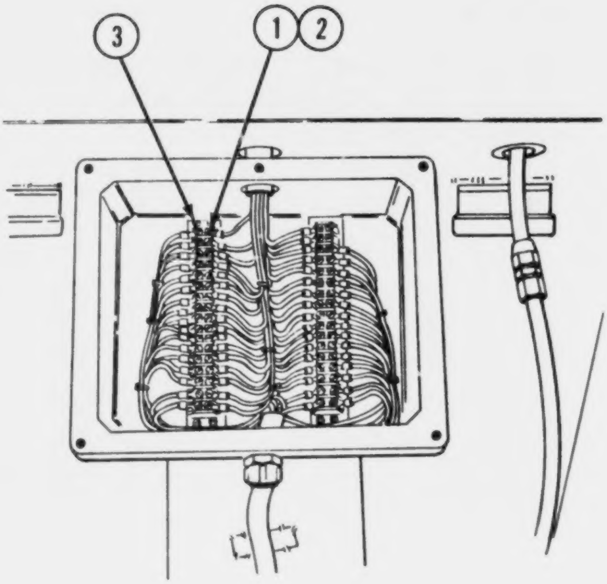
GO TO NEXT PAGE

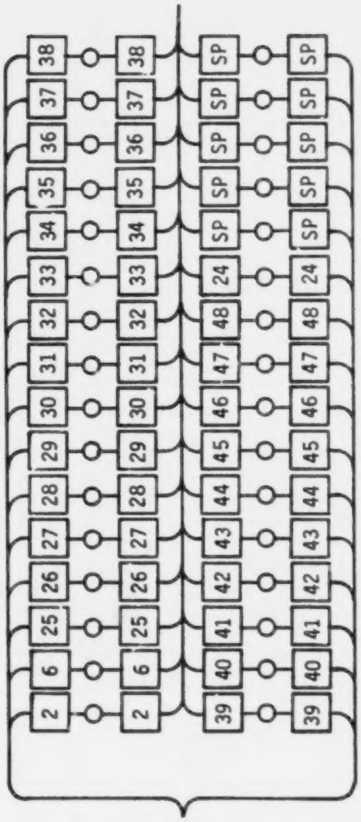
AL. WIRE BUNDLE ASSEMBLY JB4 INSTALLATION — Continued

NOTE

Thirty two wire bundle assembly JB4 leads are installed the same way. Step 4 shows Lead 38.

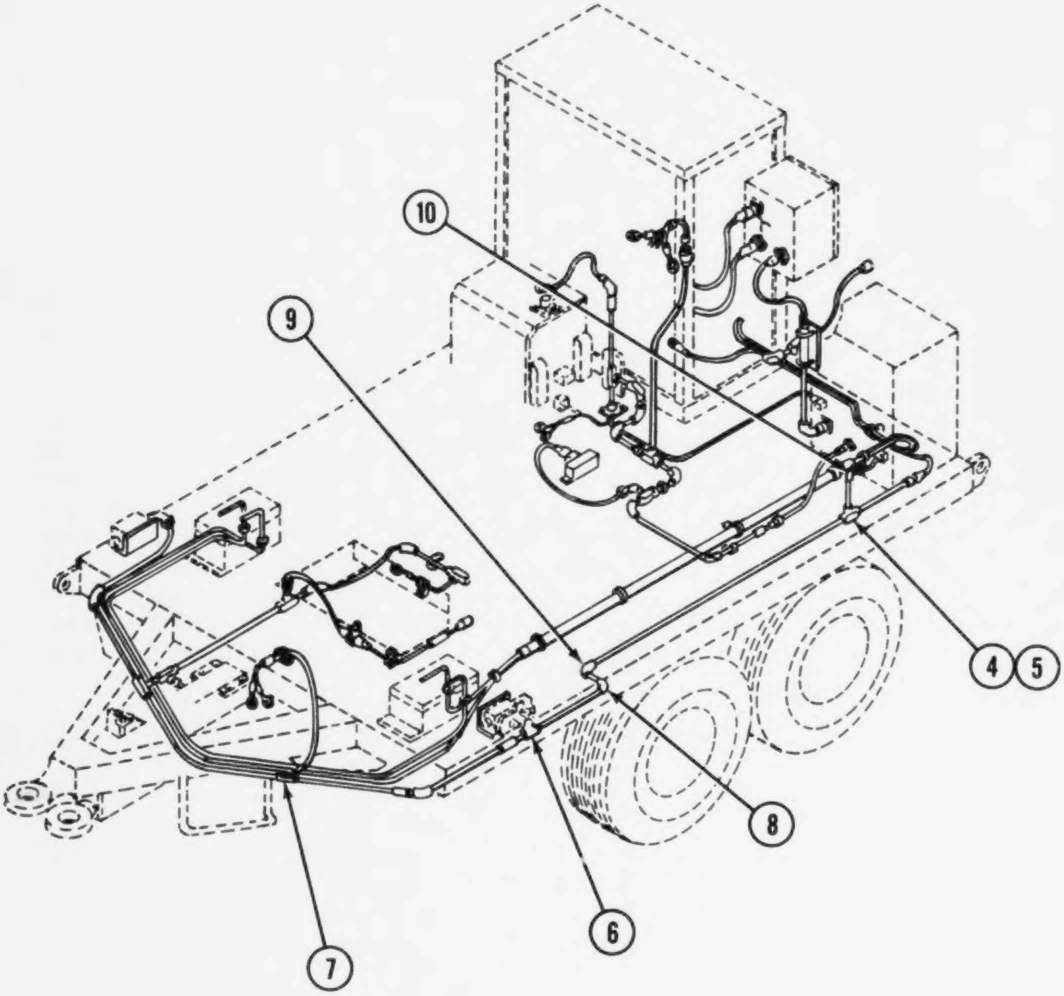
4. INSTALL 32 WIRE BUNDLE ASSEMBLY JB4 LEADS ON TERMINAL BOARD 4TB.
   - Install Lead 38 (1) and screw (2) on Terminal Board 4TB (3). Use 1/4 inch flat tip screwdriver. (See following Junction Box JB4 Wiring Diagram.)
   - Repeat above installation step for other 31 wire bundle assembly JB4 leads.




38 38 SP SP
37 37 SP SP
36 36 SP SP
35 35 SP SP
34 34 SP SP
33 33 24 24
32 32 48 48
31 31 47 47
30 30 46 46
29 29 45 45
28 28 44 44
27 27 43 43
26 26 42 42
25 25 41 41
6 6 40 40
2 2 39 39

Junction Box JB4 Wiring Diagram

5. INSTALL CONDUIT FITTING COVERS (4) ON CONDUIT TEES (5), (6), AND (7) AND ON CONDUIT PULLING ELBOWS (8), (9), AND (10). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



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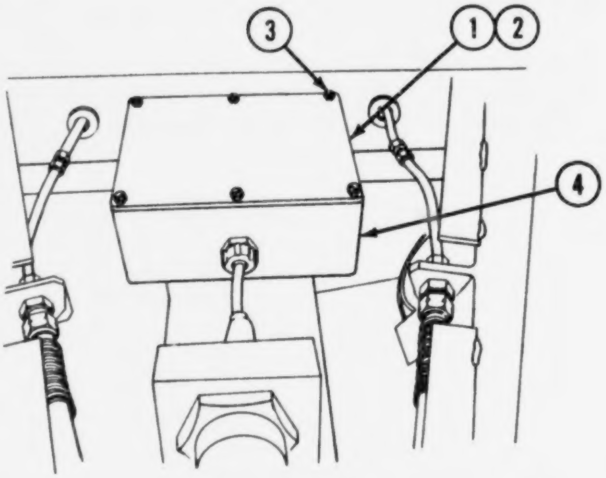
AL. WIRE BUNDLE ASSEMBLY JB4 INSTALLATION — Continued

6. INSTALL WIRE BUNDLE ASSEMBLY JB4 LEADS ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING WIRE BUNDLE ASSEMBLY JB4 WIRE DESTINATION LIST.)

WIRE BUNDLE ASSEMBLY JB4 WIRE DESTINATION LIST

From JB1 Terminal	To Terminal Board 1TB	
	Wire and Terminal No.	Part
39	39	2
40	40	2
41	41	2
42	42	2
43	43	2
44	44	2
45	45	2
46	46	2
47	47	2
48	48	2
24	24	1
1	Spare	Spare
2	Spare	Spare
3	Spare	Spare
4	Spare	Spare
5	Spare	Spare
2	2	3
6	6	1
25	25	1
26	26	1
27	27	1
28	28	1
29	29	1
30	30	2
31	31	2
33	33	2
34	34	2
35	35	2
36	36	2
37	37	2
38	38	2

7. INSTALL JUNCTION BOX COVER ON JUNCTION BOX JB4.
   - Install new gasket (1), cover (2), and six screws (3) on JB4 (4). Use 3/8 inch flat tip screwdriver.



NOTE

FOLLOW-ON MAINTENANCE:

Install Cover Plate. (See TM 9-1095-205-20.)
Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AM. LEAD ASSEMBLY WIRE NO. 13 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)

GO TO NEXT PAGE

AM. LEAD ASSEMBLY WIRE NO. 13 REMOVAL — Continued

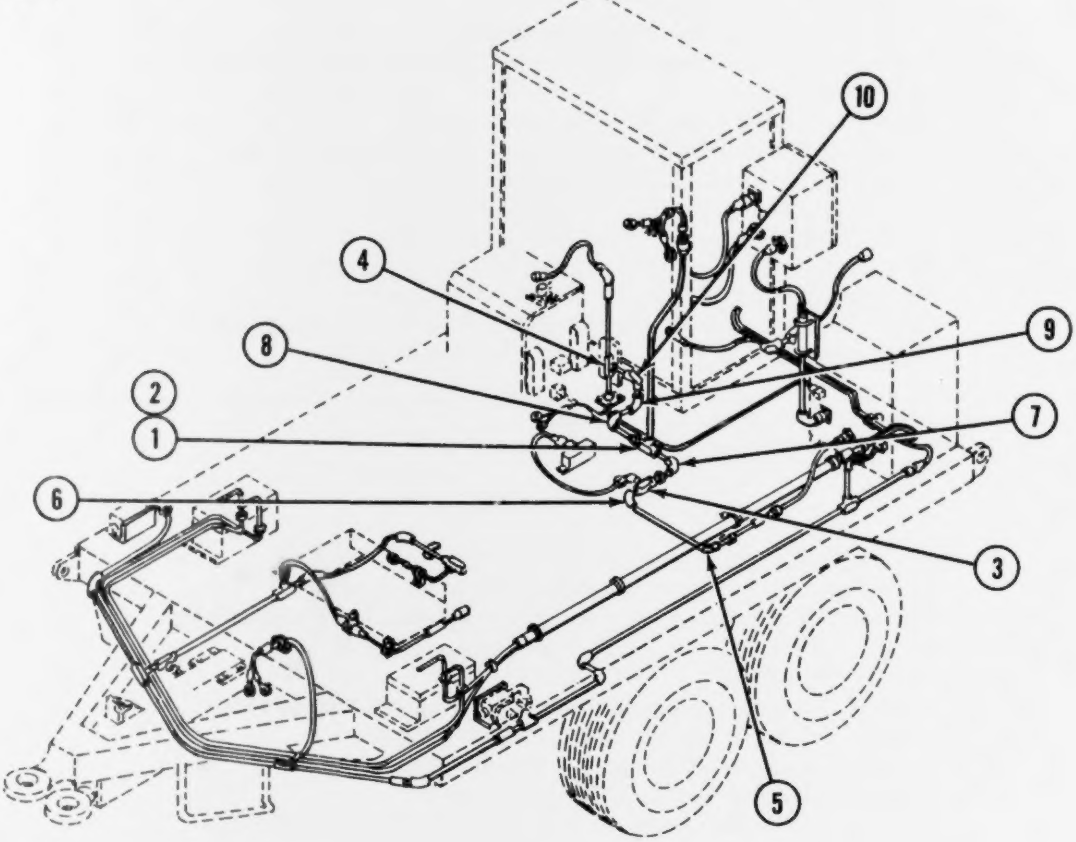
1. REMOVE LEAD ASSEMBLY WIRE NO. 13 LEAD FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING LEAD ASSEMBLY WIRE NO. 13 WIRE DESTINATION LIST.)

LEAD ASSEMBLY WIRE NO. 13 WIRE DESTINATION LIST

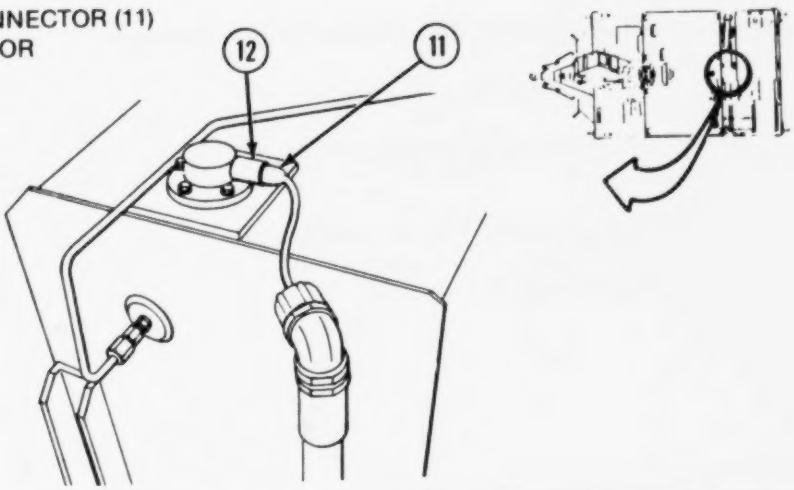
From Lead	To Terminal Board 1TB	
	Wire and Terminal No.	Part
13	13	1

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEES (2), (3), AND (4) AND FROM CONDUIT PULLING ELBOWS (5), (6), (7), (8), (9), AND (10). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



3. DISCONNECT WIRE NO. 13 CONNECTOR (11) FROM FUEL TANK LEVEL SENSOR RECEPTACLE (12).



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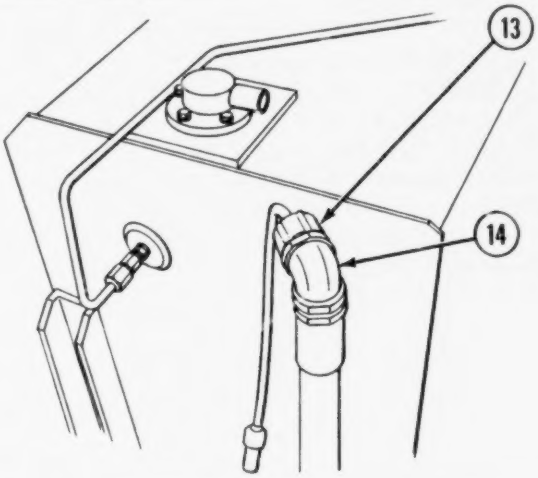
4. REMOVE CONNECTOR HUB (13) FROM 90° ELBOW (14). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



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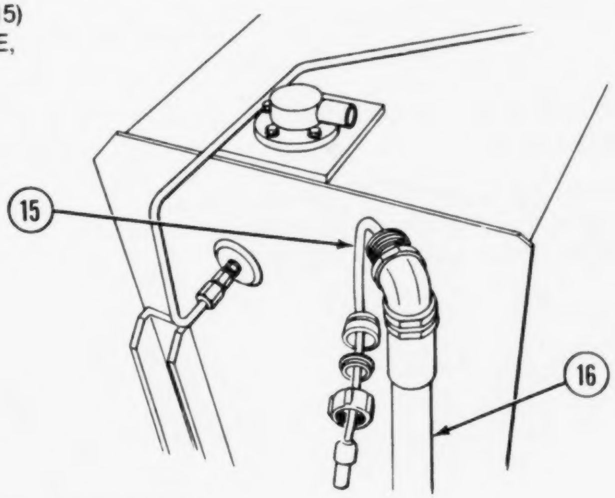
5. REMOVE LEAD ASSEMBLY WIRE NO. 13 (15) FROM CONDUIT (16). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



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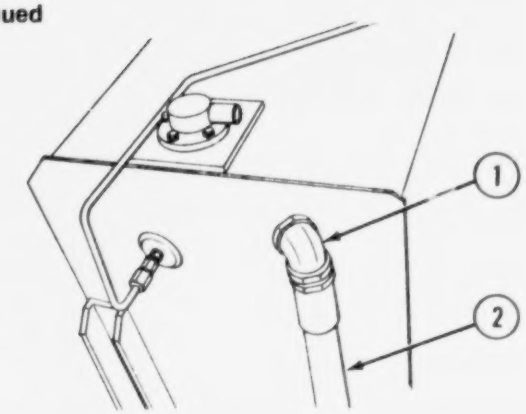
AM. LEAD ASSEMBLY WIRE NO. 13 REMOVAL — Continued

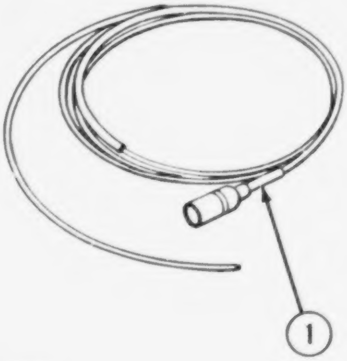


NOTE

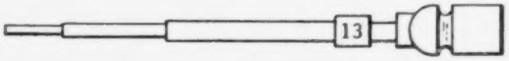
Do not remove 90° elbow unless required for maintenance.

6. REMOVE 90° ELBOW (1) FROM CONDUIT (2). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW REMOVAL, PAGE 16-10.)

AN. LEAD ASSEMBLY WIRE NO. 13 INSTALLATION



1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON LEAD ASSEMBLY WIRE NO. 13 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING LEAD ASSEMBLY WIRE NO. 13 WIRE NUMBER DESIGNATION.)

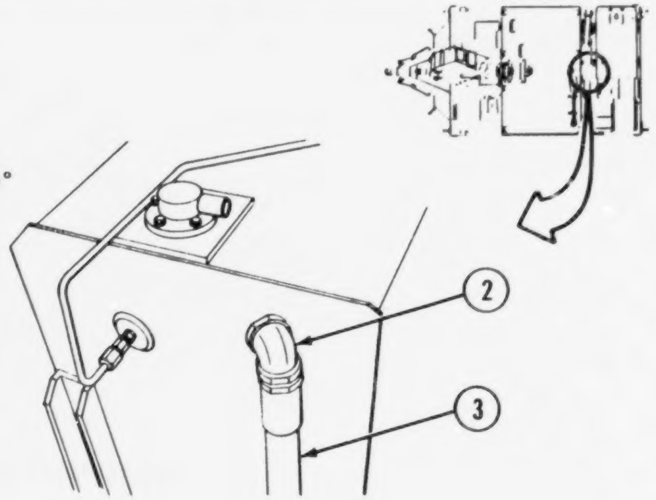


Lead Assembly Wire No. 13
Wire Number Designation

NOTE

If 90° elbow was not removed from conduit, go to step 3.

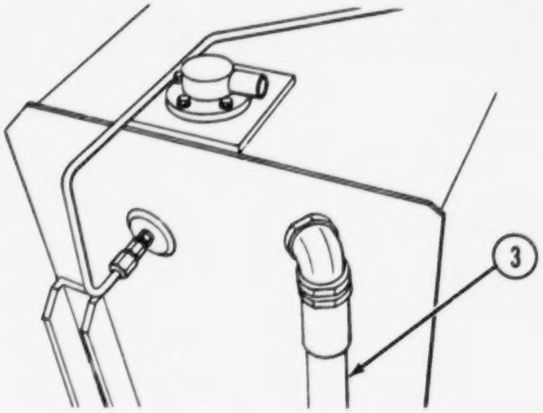
2. INSTALL NEW 90° ELBOW (2) ON CONDUIT (3). (SEE TYPICAL CONNECTOR BODY OR 90° ELBOW INSTALLATION, PAGE 16-12.)



NOTE

If fish tape was not removed from conduit, go to step 4.

3. INSTALL FISH TAPE IN CONDUIT (3). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



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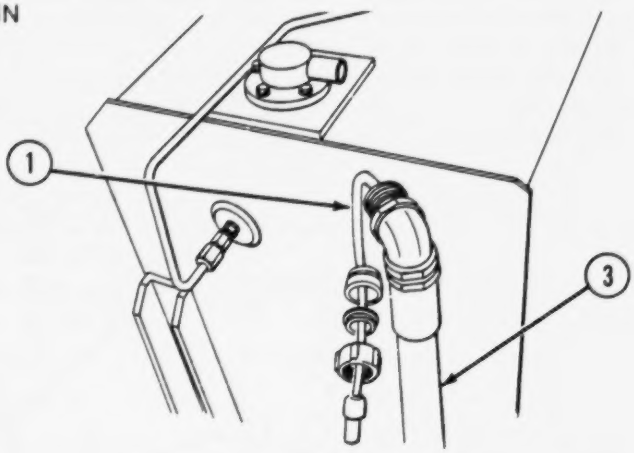
4. INSTALL LEAD ASSEMBLY WIRE NO. 13 (1) IN CONDUIT (3). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



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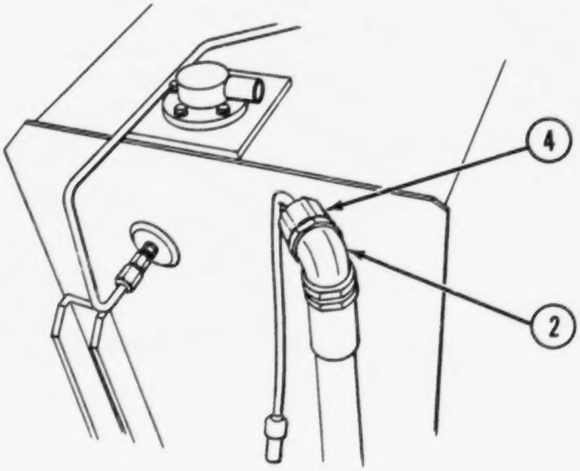
5. INSTALL CONNECTOR HUB (4) ON 90° ELBOW (2). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



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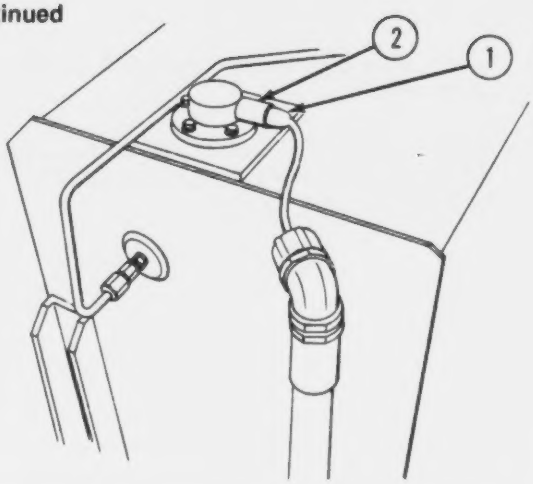
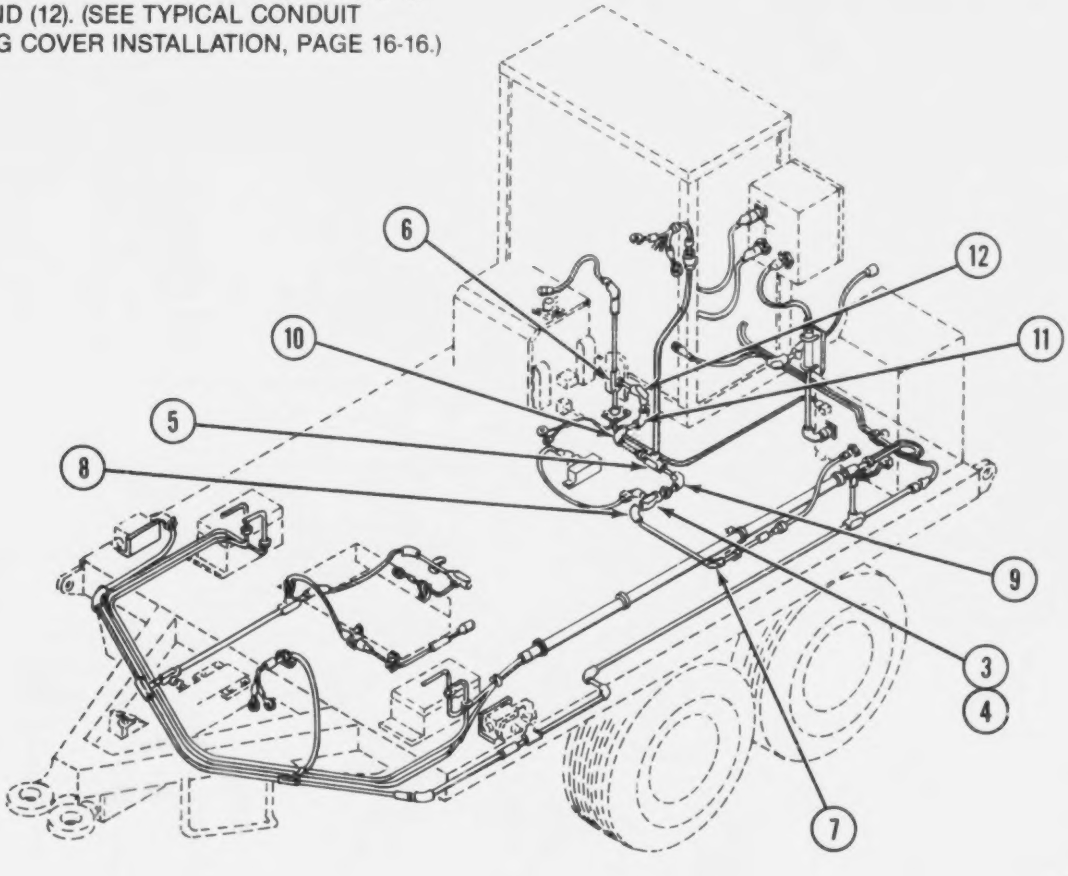
AN. LEAD ASSEMBLY WIRE NO. 13 INSTALLATION — Continued

6. CONNECT WIRE NO. 13 CONNECTOR (1) TO FUEL TANK LEVEL SENSOR RECEPTACLE (2).



7. INSTALL CONDUIT FITTING COVERS (3) ON CONDUIT TEES (4), (5), AND (6) AND ON CONDUIT PULLING ELBOWS (7), (8), (9), (10), (11), AND (12). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



8. INSTALL LEAD ASSEMBLY WIRE NO. 13 LEAD ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING LEAD ASSEMBLY WIRE NO. 13 WIRE DESTINATION LIST.)

LEAD ASSEMBLY WIRE NO. 13 WIRE DESTINATION LIST

From Lead	To Terminal Board 1TB	
	Wire and Terminal No.	Part
13	13	1

NOTE

FOLLOW-ON MAINTENANCE:

Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

AC. LEAD ASSEMBLY WIRES NO. 1 AND 2 REMOVAL

NOTE

PRELIMINARY PROCEDURES:

Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Remove Operator Control Box From Storage Cabinet. (See TM 9-1095-205-10.)
Remove Cables From Storage Cabinet. (See TM 9-1095-205-10.)
Unstow Operator's Manual. (See TM 9-1095-205-10.)
Unstow Rawhide Mallet. (See TM 9-1095-205-10.)
Unstow Manual Crank. (See TM 9-1095-205-10.)
Remove Control Box Storage Assembly. (See TM 9-1095-205-20.)
Open BITE Panel Door. (See TM 9-1095-205-10.)
Open B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Open Engine Hinged Panel. (See TM 9-1095-205-10.)

GO TO NEXT PAGE

AO. LEAD ASSEMBLY WIRES NO. 1 AND 2 REMOVAL — Continued

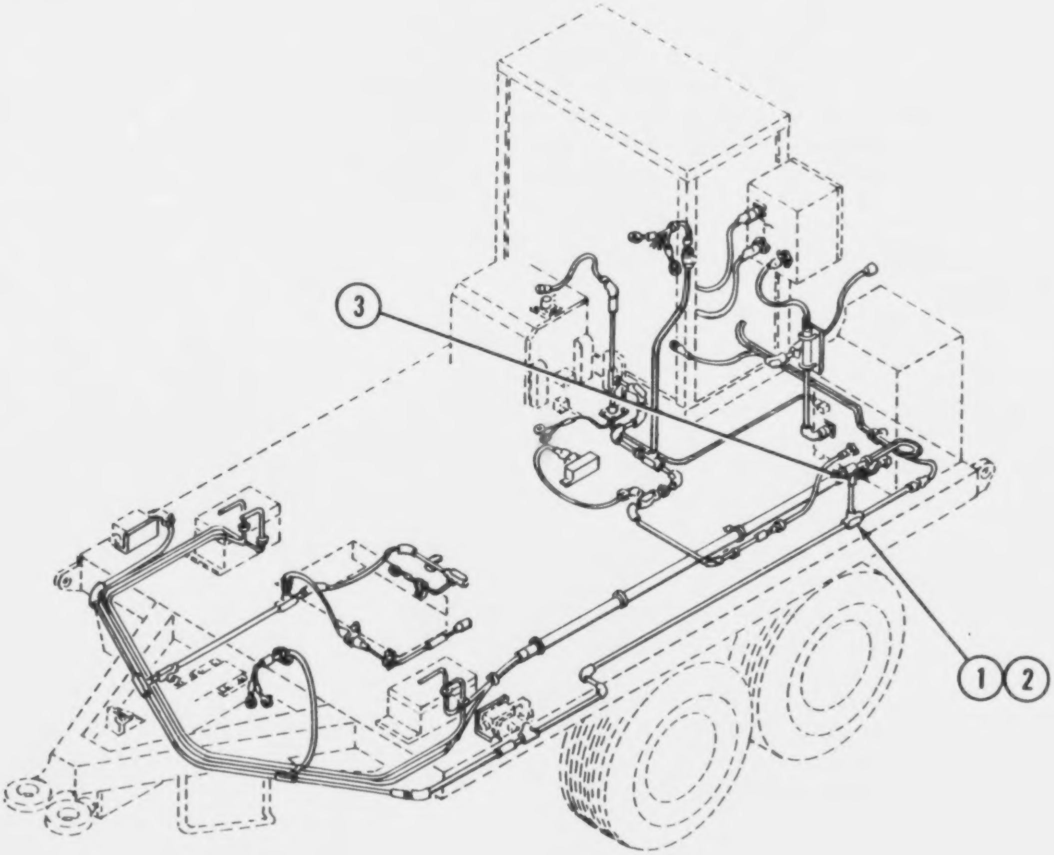
1. REMOVE LEAD ASSEMBLY WIRES NO. 1 AND 2 LEADS FROM TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY REMOVAL FROM TERMINAL BOARD 1TB, PAGE 16-6, AND FOLLOWING LEAD ASSEMBLY WIRES NO. 1 AND 2 WIRE DESTINATION LIST.)

LEAD ASSEMBLY WIRES NO. 1 AND NO. 2
WIRE DESTINATION LIST

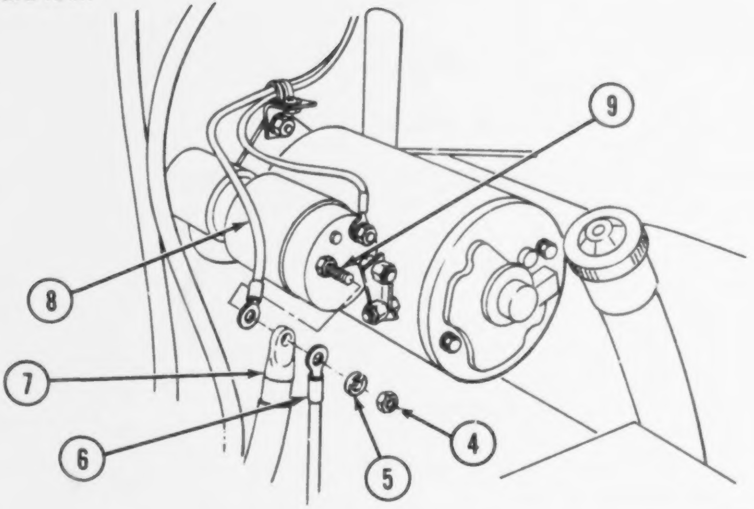
From	Wire No.	Destination
Starter solenoid	1	K1A1
Bell housing	2	Ground bus

---

2. REMOVE CONDUIT FITTING COVERS (1) FROM CONDUIT TEE (2) AND CONDUIT PULLING ELBOW (3). (SEE TYPICAL CONDUIT FITTING COVER REMOVAL, PAGE 16-7.)



3. REMOVE WIRE NO. 1 FROM SOLENCID TERMINAL.
   - Tag and mark leads.
   - Remove nut (4), lock washer (5), Wire No. 1 (6), NATO Receptacle Lead 1 (7) and Power Panel Lead 1 (8) from solenoid terminal (9). Use 5/8 inch box end wrench. Discard lock washer.



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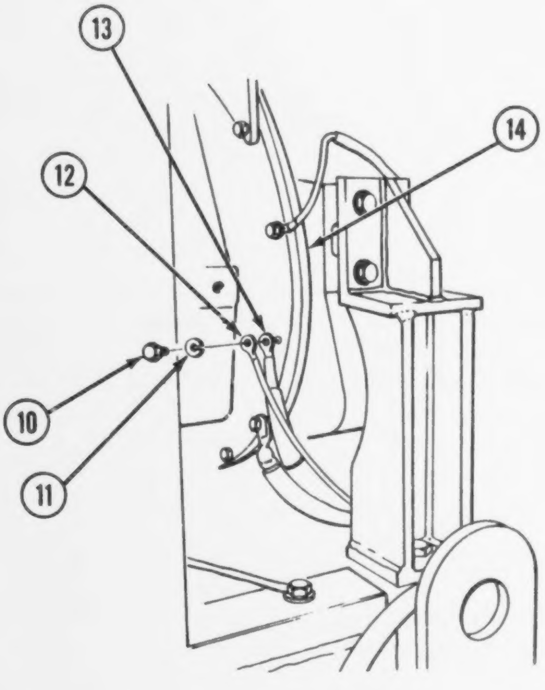
4. REMOVE WIRE NO. 2 FROM BELL HOUSING.
   - Tag and mark leads.
   - Remove screw (10), lock washer (11), ground lead (12), and Wire No. 2 (13) from bell housing (14). Use 9/16 inch open end wrench. Discard lock washer.



GO TO NEXT PAGE

AO. LEAD ASSEMBLY WIRES NO. 1 AND 2 REMOVAL -- Continued

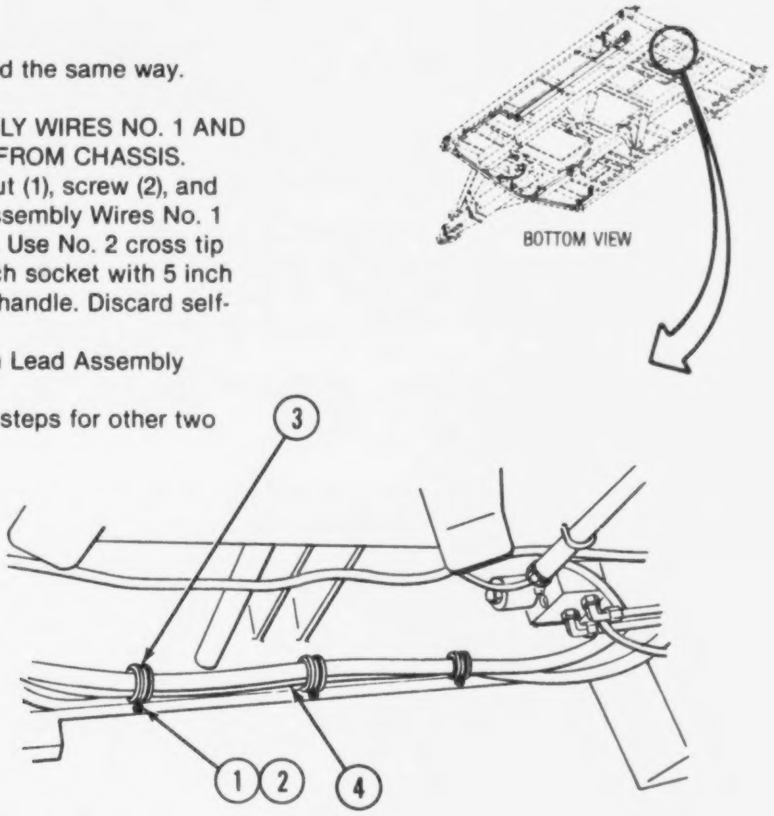
WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

NOTE

Three clamps are removed the same way.

5. REMOVE LEAD ASSEMBLY WIRES NO. 1 AND 2 AND THREE CLAMPS FROM CHASSIS.
   - Remove self-locking nut (1), screw (2), and clamp (3) with Lead Assembly Wires No. 1 and 2 (4) from chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 5 inch extension and ratchet handle. Discard self-locking nut.
   - Remove clamp (3) from Lead Assembly Wires No. 1 and 2 (4).
   - Repeat above removal steps for other two clamps.



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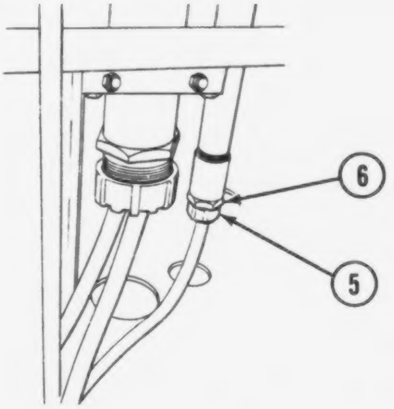
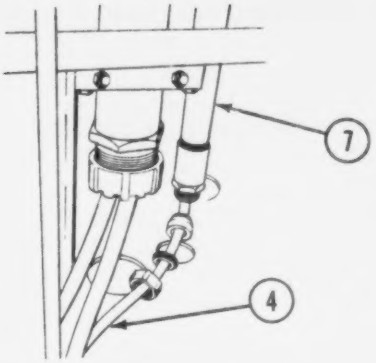
6. REMOVE CONNECTOR HUB (5) FROM CONNECTOR BODY (6). (SEE TYPICAL CONNECTOR HUB REMOVAL, PAGE 16-7.)



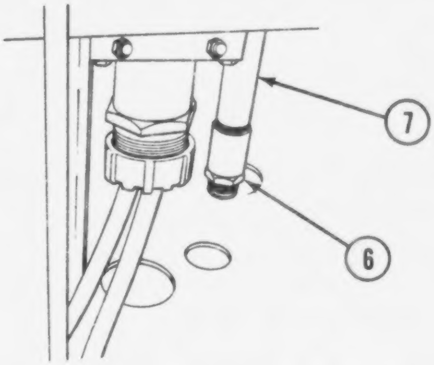
7. REMOVE LEAD ASSEMBLY WIRES NO. 1 AND 2 (4) FROM CONDUIT (7). (SEE TYPICAL CABLE, WIRE BUNDLE OR LEAD ASSEMBLY REMOVAL FROM CONDUIT, PAGE 16-8.)



NOTE

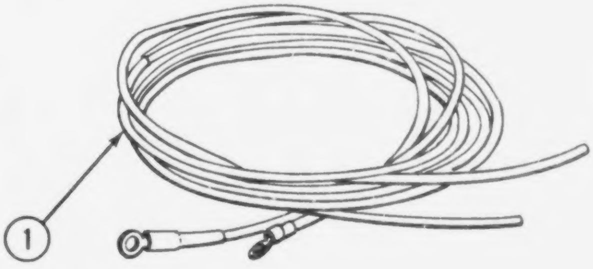
Do not remove connector body unless conduit will be replaced.

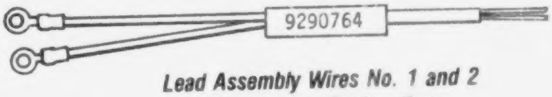
8. REMOVE CONNECTOR BODY (6) FROM CONDUIT (7). (SEE TYPICAL CONNECTOR BODY, 90° ELBOW, OR 45° ELBOW REMOVAL, PAGE 16-10.)



AP. LEAD ASSEMBLY WIRES NO. 1 AND 2 INSTALLATION

1. PERFORM IDENTIFICATION AND CONTINUITY CHECK ON LEAD ASSEMBLY WIRES NO. 1 AND 2 (1). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY IDENTIFICATION AND CONTINUITY CHECK, PAGE 16-11, AND FOLLOWING LEAD ASSEMBLY WIRES NO. 1 AND 2 WIRE NUMBER DESIGNATIONS.)





Lead Assembly Wires No. 1 and 2 Wire Number Designations

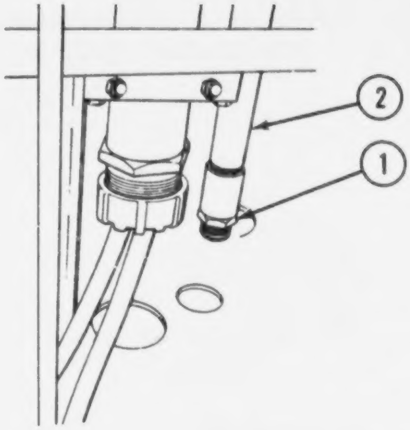
GO TO NEXT PAGE

AP. LEAD ASSEMBLY WIRES NO. 1 AND 2 INSTALLATION — Continued

NOTE

If connector body was not removed from conduit, go to step 3.

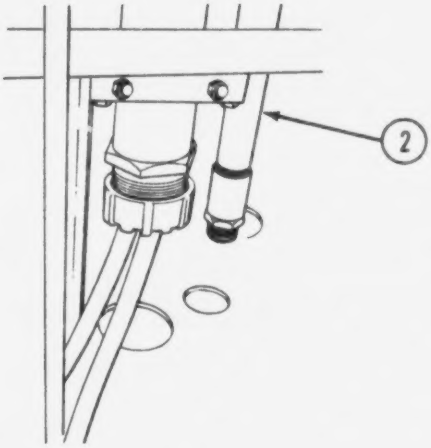
2. INSTALL NEW CONNECTOR BODY (1) ON CONDUIT (2). (SEE TYPICAL CONNECTOR BODY, 90° ELBOW, OR 45° ELBOW INSTALLATION, PAGE 16-12.)



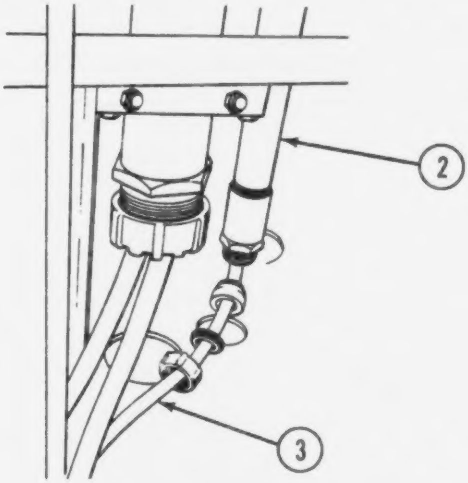
NOTE

If fish tape was not removed from conduit, go to step 4.

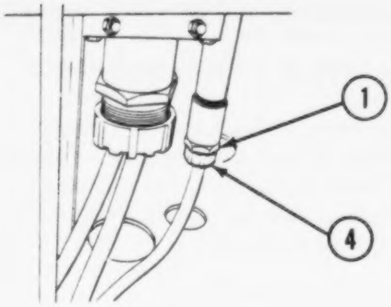
3. INSTALL FISH TAPE IN CONDUIT (2). (SEE TYPICAL FISH TAPE INSTALLATION IN CONDUIT, PAGE 16-13.)



4. INSTALL LEAD ASSEMBLY WIRES NO. 1 AND 2 (3) IN CONDUIT (2). (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION IN CONDUIT, PAGE 16-14.)



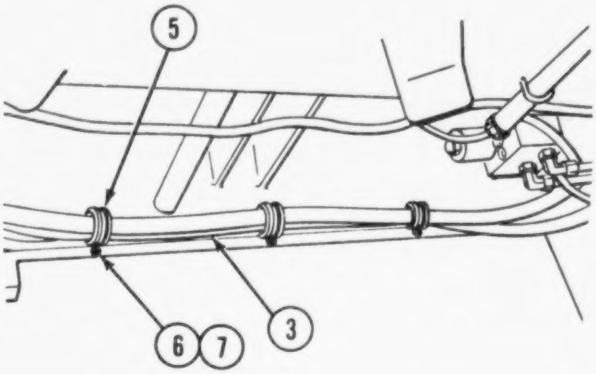
5. INSTALL CONNECTOR HUB (4) ON CONNECTOR BODY (1). (SEE TYPICAL CONNECTOR HUB INSTALLATION, PAGE 16-16.)



NOTE

Three clamps are installed the same way.

6. INSTALL LEAD ASSEMBLY WIRES NO. 1 AND 2 AND THREE CLAMPS ON CHASSIS.
   - Place clamp (5) on Lead Assembly Wires No. 1 and 2 (3).
   - Install clamp (5) with Lead Assembly Wires No. 1 and 2 (3), screw (6), and new self-locking nut (7) on chassis. Use No. 2 cross tip screwdriver and 3/8 inch socket with 5 inch extension and ratchet handle.
   - Repeat above installation steps for other two clamps.



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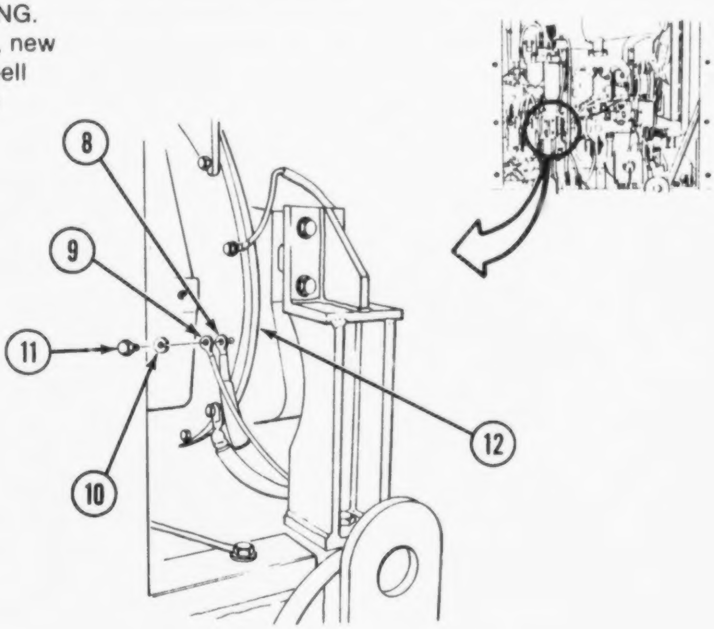
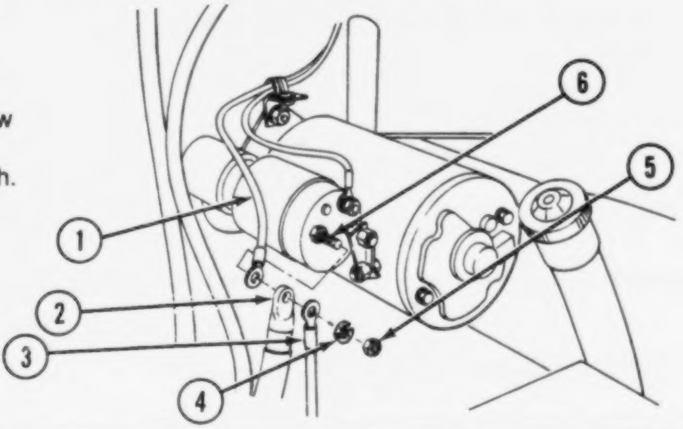
7. INSTALL WIRE NO. 2 ON BELL HOUSING.
   - Install Wire No. 2 (8), ground lead (9), new lock washer (10), and screw (11) on bell housing (12). Use 9/16 inch open end wrench.
   - Remove tags from leads.



GO TO NEXT PAGE

AP. LEAD ASSEMBLY WIRES NO. 1 AND 2 INSTALLATION — Continued

8. INSTALL WIRE NO. 1 ON SOLENOID TERMINAL.
   - Install Power Panel Lead 1 (1), NATO Receptacle Lead 1 (2), Wire No. 1 (3), new lock washer (4), and nut (5) on solenoid terminal (6). Use 5/8 inch box end wrench.
   - Remove tags from leads.



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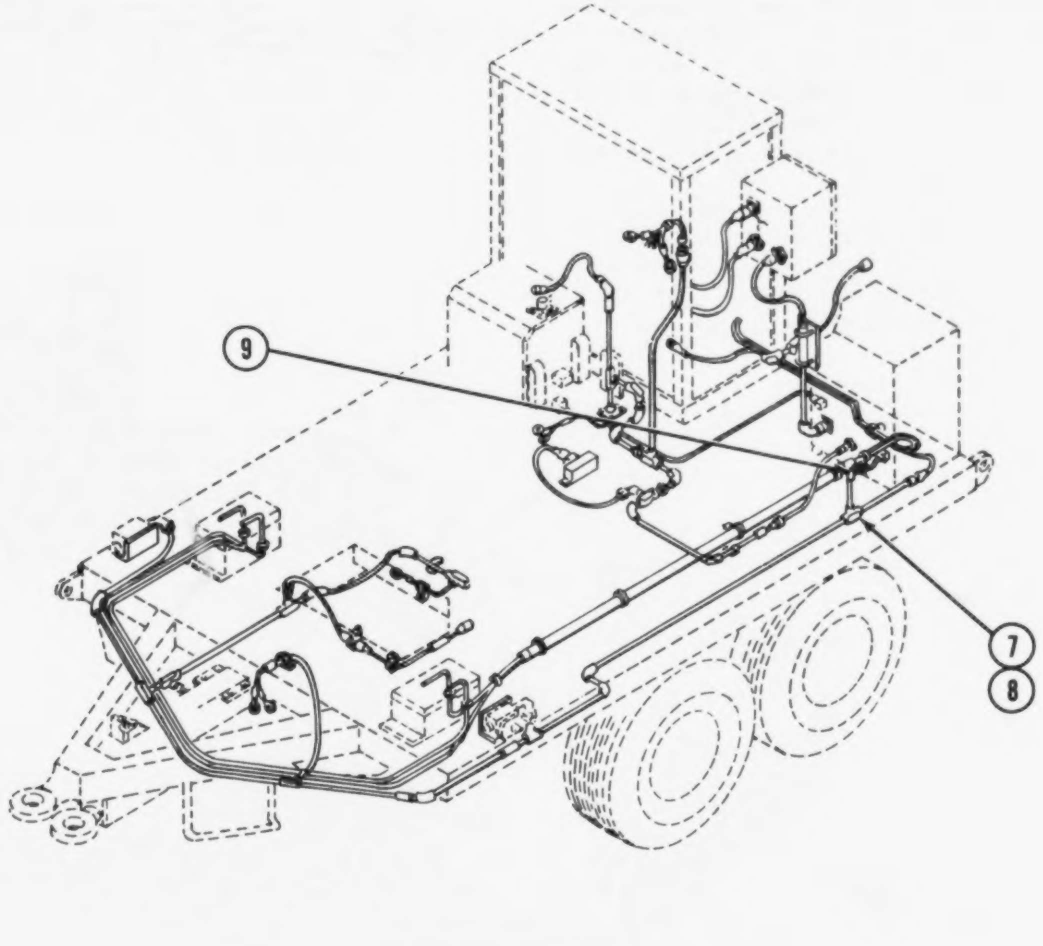
9. INSTALL CONDUIT FITTING COVERS (7) ON CONDUIT TEE (8) AND CONDUIT PULLING ELBOW (9). (SEE TYPICAL CONDUIT FITTING COVER INSTALLATION, PAGE 16-16.)



10. INSTALL LEAD ASSEMBLY WIRES NO. 1 AND 2 ON TERMINAL BOARD 1TB. (SEE TYPICAL CABLE, WIRE BUNDLE, OR LEAD ASSEMBLY INSTALLATION ON TERMINAL BOARD 1TB, PAGE 16-17, AND FOLLOWING LEAD ASSEMBLY WIRES NO. 1 AND 2 WIRE DESTINATION LIST.)

LEAD ASSEMBLY WIRES NO. 1 AND NO. 2
WIRE DESTINATION LIST

From	Wire No.	Destination
Starter solenoid	1	K1A1
Bell housing	2	Ground bus

NOTE

FOLLOW-ON MAINTENANCE:
Close Engine Hinged Panel. (See TM 9-1095-205-10.)
Close B.I.T.E. ALARM Panel Assembly. (See B.I.T.E. ALARM Panel Assembly, Page 11-195.)
Close BITE Panel Door. (See TM 9-1095-205-10.)
Install Control Box Storage Assembly. (See TM 9-1095-205-20.)
Stow Manual Crank. (See TM 9-1095-205-10.)
Stow Rawhide Mallet. (See TM 9-1095-205-10.)
Stow Operator's Manual. (See TM 9-1095-205-10.)
Put Cables In Storage Cabinet. (See TM 9-1095-205-10.)
Stow Operator Control Box. (See TM 9-1095-205-10.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

END OF TASK

16-5 JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4

DESCRIPTION

This task covers:
A. CONNECTOR ASSEMBLY J4 REMOVAL (p 16-139)
B. CONNECTOR ASSEMBLY J4 INSTALLATION (p 16-142)
C. JUNCTION BOX JB4 ASSEMBLY REMOVAL (p 16-145)
D. JUNCTION BOX JB4 ASSEMBLY DISASSEMBLY (p 16-147)
E. JUNCTION BOX JB4 ASSEMBLY REASSEMBLY (p 16-148)
F. JUNCTION BOX JB4 ASSEMBLY INSTALLATION (p 16-148)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit 5180-00-177-7033:
  - 1/4 inch flat tip screwdriver
  - 5/16 inch flat tip screwdriver
  - No. 2 cross tip screwdriver
  - 9/16 inch socket
  - Ratchet handle
  - 10 inch adjustable wrench
- 15 inch adjustable wrench 5120-00-264-3793
- Slip joint pliers 5120-00-278-0352
- Goggles 4240-00-269-7912
- 10 inch pipe wrench 5120-00-277-1485

Materials/Parts:
- Sealing compound, Item 25, Appendix B
- Masking tape, Item 19, Appendix B
- Lock washer (8) 5310-00-579-0079
- Lock washer (4) 5310-00-595-7237
- Lock washer 5310-00-579-5752
- Straight cord grip connector 5975-00-296-9437
- Liquidtight angle connector 5975-00-995-5259

Personnel Required:
- Electrical repairer

References:
- TM 9-1095-205-10
- TM 9-1095-205-20

A. CONNECTOR ASSEMBLY J4 REMOVAL

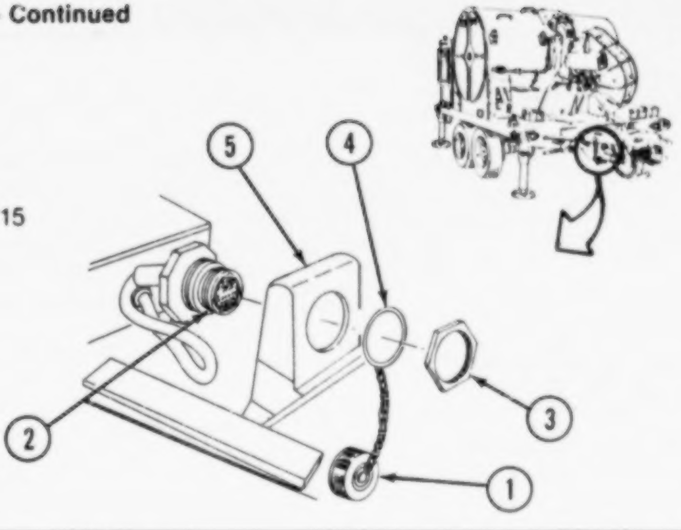
NOTE

PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Open Manual Bypass Valve. (See TM 9-1095-205-10.)
Swing Launcher To Far Left. (See TM 9-1095-205-10.)
Close Manual Bypass Valve. (See TM 9-1095-205-10.)
Remove Cover Plate. (See TM 9-1095-205-20.)

GO TO NEXT PAGE

A. CONNECTOR ASSEMBLY J4 REMOVAL — Continued

1. REMOVE CONNECTOR ASSEMBLY J4 FROM BRACKET.
   - Turn protective cover (1) to left, and remove from Receptacle J4 (2).
   - Remove nut (3), cover ring (4), and Receptacle J4 (2) from bracket (5). Use 15 inch adjustable wrench.



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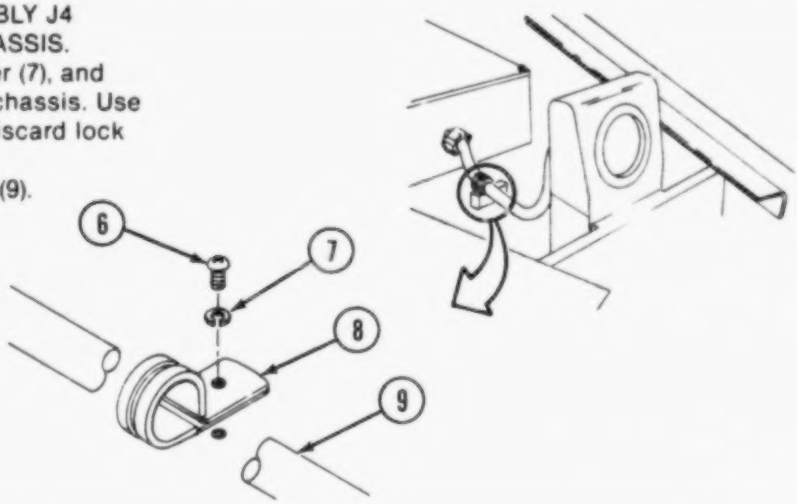
2. REMOVE CONNECTOR ASSEMBLY J4 CABLE AND CLAMP FROM CHASSIS.
   - Remove screw (6), lock washer (7), and clamp (8) with cable (9) from chassis. Use No. 2 cross tip screwdriver. Discard lock washer.
   - Remove clamp (8) from cable (9).



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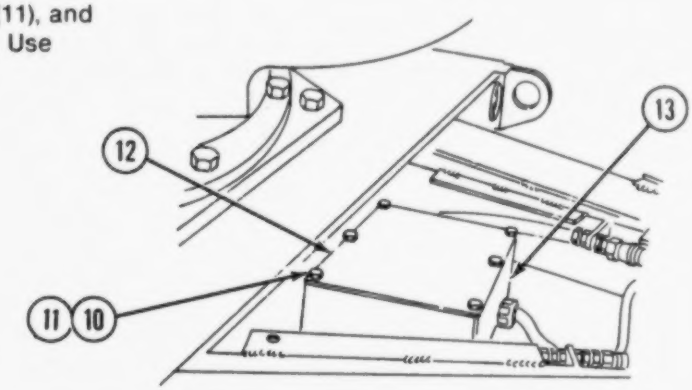
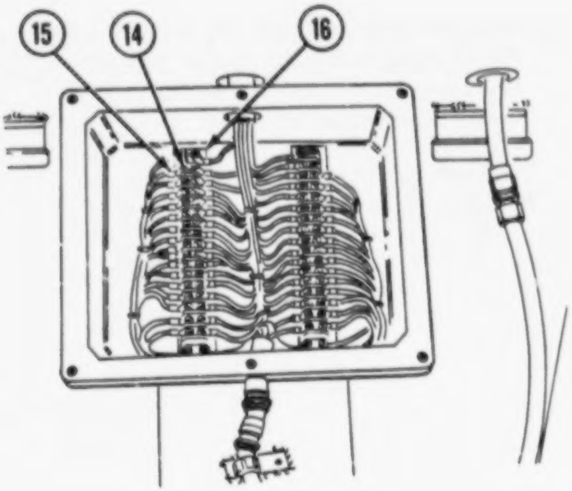
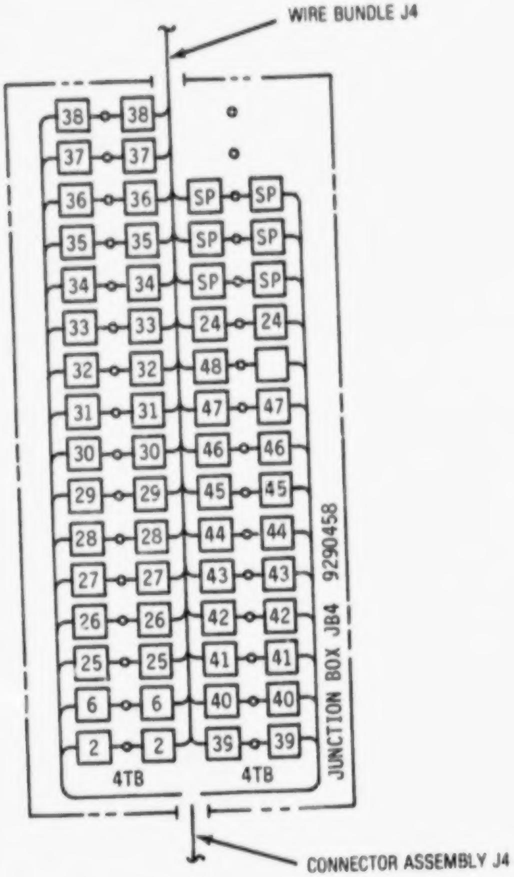
3. REMOVE COVER FROM JUNCTION BOX JB4 ASSEMBLY.
   - Remove six screws (10), washers (11), and cover (12) from JB4 assembly (13). Use 5/16 inch flat tip screwdriver.



4. REMOVE 30 CONNECTOR ASSEMBLY J4 LEADS FROM TERMINAL BOARD 4TB.
   - Tag and mark Connector Assembly J4 leads. (See following Junction Box JB4 Assembly Wiring Diagram.)
   - Remove 30 screws (14) and Connector Assembly J4 leads (15) from Terminal Board 4TB (16). Use 1/4 inch flat tip screwdriver.
   - Bundle and wrap 30 Connector Assembly J4 leads (15). Use masking tape.



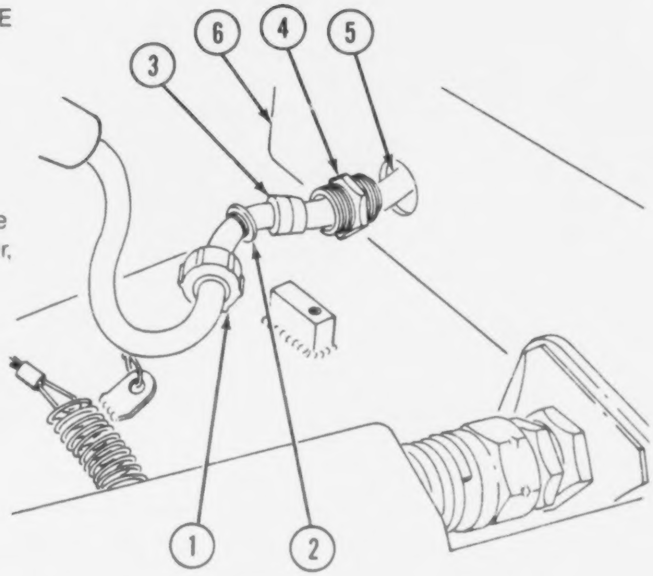

WIRE BUNDLE J4
38 38
37 37
36 36 SP SP
35 35 SP SP
34 34 SP SP
33 33 24 24
32 32 48
31 31 47 47
30 30 46 46
29 29 45 45
28 28 44 44
27 27 43 43
26 26 42 42
25 25 41 41
6 6 40 40
2 2 39 39
4TB
4TB
JUNCTION BOX JB4 9290458
CONNECTOR ASSEMBLY J4

Junction Box JB4 Assembly Wiring Diagram

GO TO NEXT PAGE

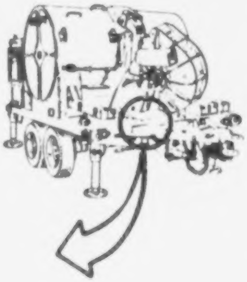
A. CONNECTOR ASSEMBLY J4 REMOVAL — Continued

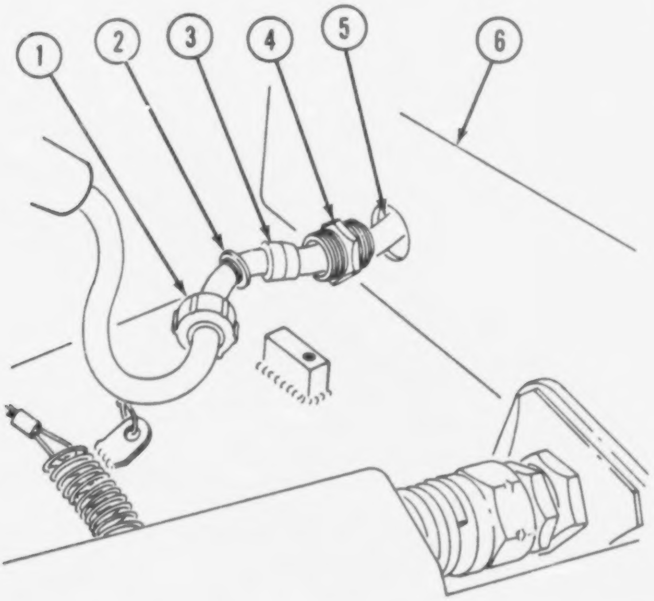
5. REMOVE CONNECTOR ASSEMBLY J4 CABLE FROM JUNCTION BOX JB4 ASSEMBLY.
   - Remove connector hub (1), spacer (2), bushing (3), connector body (4), and cable (5) from JB4 assembly (6). Use 10 inch adjustable wrench.
   - Remove connector body (4), bushing (3), spacer (2), and connector hub (1) from cable (5). Discard connector body, bushing, spacer, and connector hub.



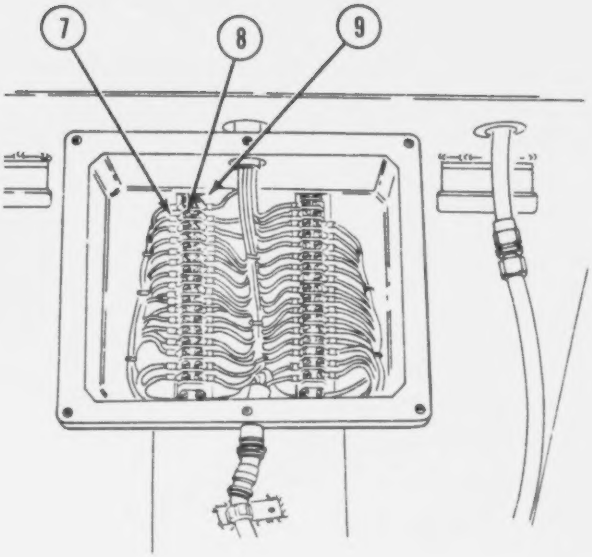
B. CONNECTOR ASSEMBLY J4 INSTALLATION

1. POSITION CONNECTOR ASSEMBLY J4 CABLE IN JUNCTION BOX JB4 ASSEMBLY.
   - Install new connector hub (1), new spacer (2), new bushing (3), and new connector body (4) on cable (5).
   - Position cable (5) in JB4 assembly (6).





2. INSTALL 30 CONNECTOR ASSEMBLY J4 LEADS ON TERMINAL BOARD 4TB.
   - Remove masking tape from bundled Connector Assembly J4 leads.
   - Install 30 Connector Assembly J4 leads (7) and screws (8) on Terminal Board 4TB (9). Use 1/4 inch flat tip screwdriver. (See Junction Box JB4 Assembly Wiring Diagram, Page 16-141.)
   - Remove tags from leads.



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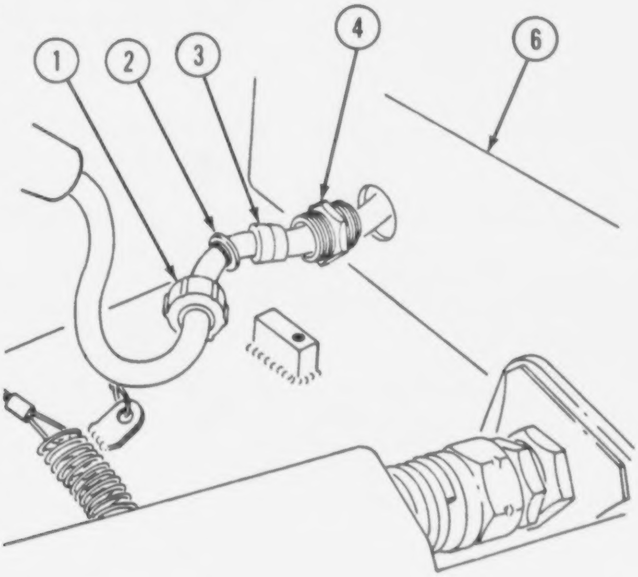
3. INSTALL CORD GRIP CONNECTOR ON JUNCTION BOX JB4 ASSEMBLY.
   - Install connector body (4), bushing (3), spacer (2), and connector hub (1) on JB4 assembly (6). Use 10 inch adjustable wrench.



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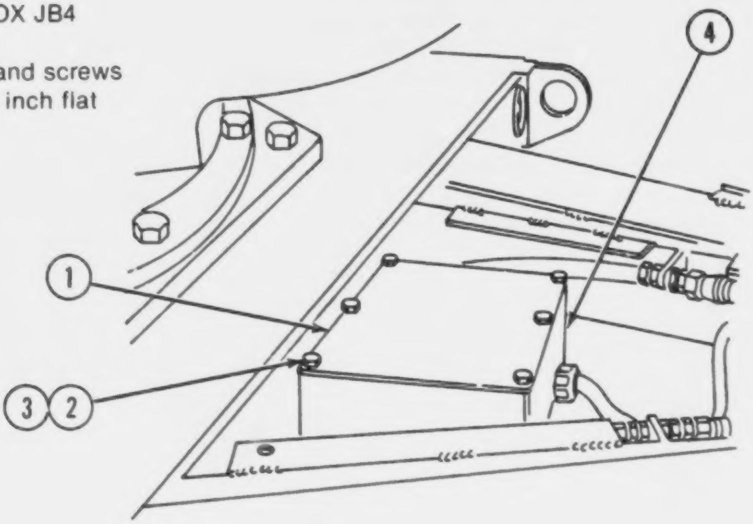
B. CONNECTOR ASSEMBLY J4 INSTALLATION — Continued

4. INSTALL COVER ON JUNCTION BOX JB4 ASSEMBLY.
   - Install cover (1), six washers (2), and screws (3) on JB4 assembly (4). Use 5/16 inch flat tip screwdriver.



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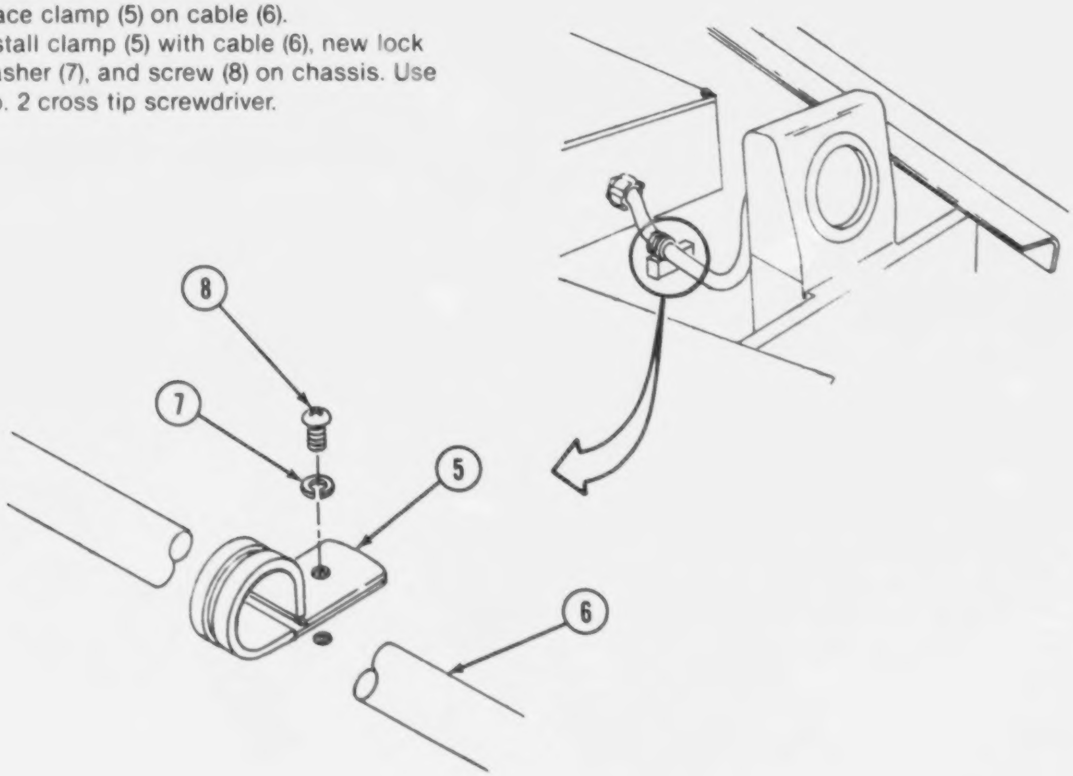
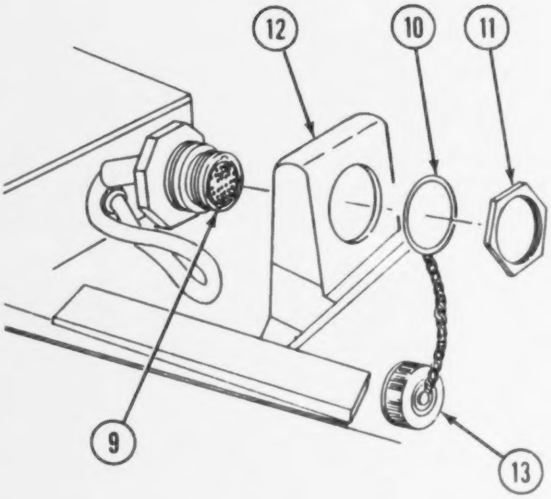
5. INSTALL CONNECTOR ASSEMBLY J4 CABLE AND CLAMP ON CHASSIS.
   - Place clamp (5) on cable (6).
   - Install clamp (5) with cable (6), new lock washer (7), and screw (8) on chassis. Use No. 2 cross tip screwdriver.



6. INSTALL CONNECTOR ASSEMBLY J4 ON BRACKET.
   - Install Receptacle J4 (9), cover ring (10), and nut (11) on bracket (12). Use 15 inch adjustable wrench.
   - Install protective cover (13) on Receptacle J4 (9).



NOTE

FOLLOW-ON MAINTENANCE:
Install Cover Plate. (See TM 9-1095-205-20.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

C. JUNCTION BOX JB4 ASSEMBLY REMOVAL

NOTE

PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)
Open Manual Bypass Valve. (See TM 9-1095-205-10.)
Swing Launcher To Far Left. (See TM 9-1095-205-10.)
Close Manual Bypass Valve. (See TM 9-1095-205-10.)
Remove Cover Plate. (See TM 9-1095-205-20.)

1. REMOVE CONNECTOR ASSEMBLY J4 CABLE AND CLAMP FROM CHASSIS. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-140.)

2. REMOVE COVER FROM JUNCTION BOX JB4 ASSEMBLY. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-140.)

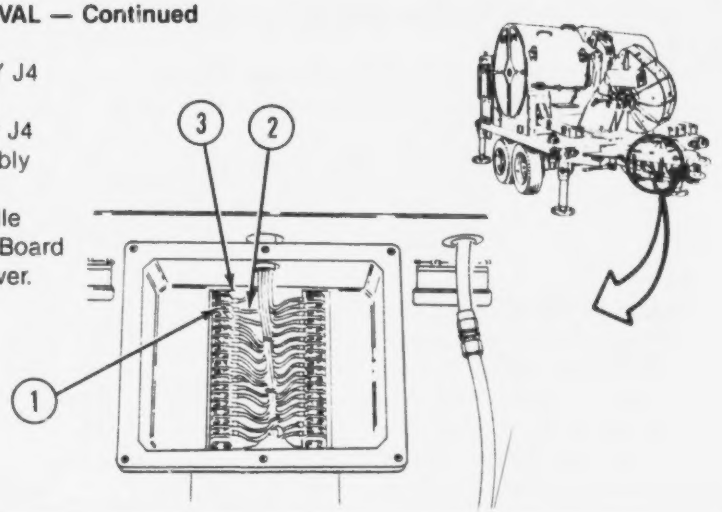
3. REMOVE 30 CONNECTOR ASSEMBLY J4 LEADS FROM TERMINAL BOARD 4TB. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-141.)

4. REMOVE CONNECTOR ASSEMBLY J4 CABLE FROM JUNCTION BOX JB4 ASSEMBLY. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-142.)

GO TO NEXT PAGE

C. JUNCTION BOX JB4 ASSEMBLY REMOVAL — Continued

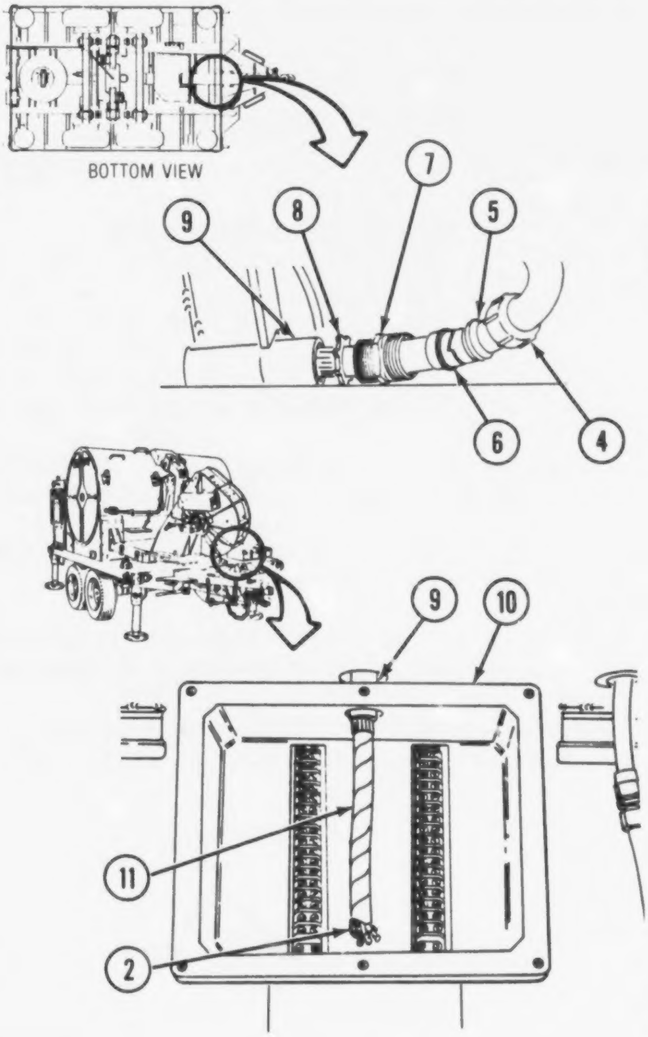
5. REMOVE 30 WIRE BUNDLE ASSEMBLY J4 LEADS FROM TERMINAL BOARD 4TB.
   - Tag and mark Wire Bundle Assembly J4 leads. (See Junction Box JB4 Assembly Wiring Diagram, Page 16-141.)
   - Remove 30 screws (1) and Wire Bundle Assembly J4 leads (2) from Terminal Board 4TB (3). Use 1/4 inch flat tip screwdriver.



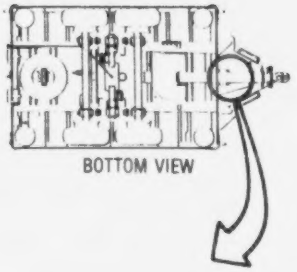
WARNING

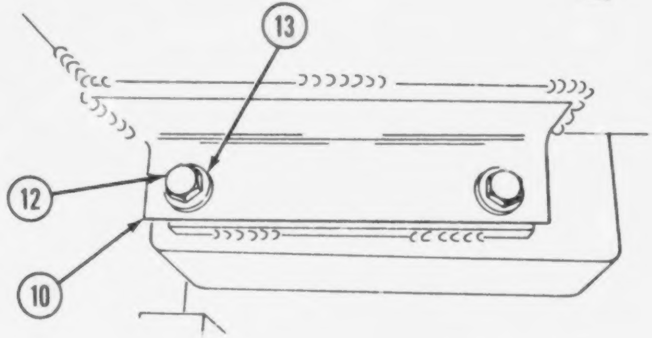
Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

6. REMOVE WIRE BUNDLE ASSEMBLY J4 FROM JUNCTION BOX JB4 ASSEMBLY.
   - Remove connector hub (4), sealing ring (5), sleeve (6), 45° elbow (7), and lock nut (8) from straight conduit (9). Use slip joint pliers.
   - Remove straight conduit (9) from JB4 assembly (10). Use 10 inch pipe wrench.
   - Bundle and wrap 30 Wire Bundle Assembly J4 leads (2). Use masking tape.
   - Remove Wire Bundle J4 (11) from JB4 assembly (10).
   - Remove straight conduit (9), lock nut (8), 45° elbow (7), sleeve (6), sealing ring (5), and connector hub (4) from Wire Bundle J4 (11). Discard lock nut, 45° elbow, sleeve, sealing ring, and connector hub.



7. REMOVE JUNCTION BOX JB4 ASSEMBLY FROM CHASSIS.
   - Remove four screws (12), lock washers (13), and JB4 assembly (10) from chassis. Use 9/16 inch socket with ratchet handle. Discard lock washers.

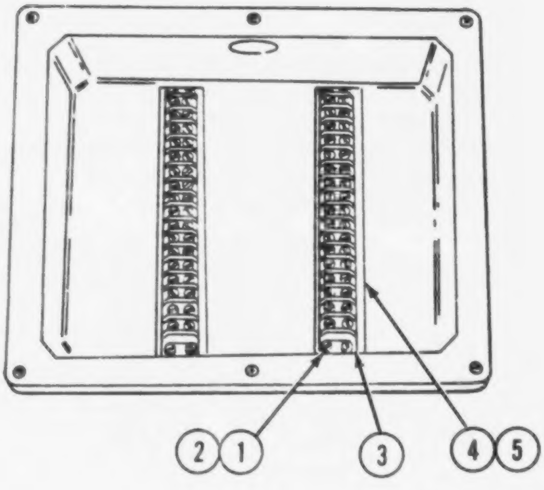




D. JUNCTION BOX JB4 ASSEMBLY DISASSEMBLY

REMOVE TWO 4TB TERMINAL BOARDS AND TWO 4TB TERMINAL MARKER STRIPS FROM JUNCTION BOX JB4 ASSEMBLY.

- Remove four screws (1), lock washers (2), right terminal board (3), and right marker strip (4) from mounting bar (5). Use 1/4 inch flat tip screwdriver. Discard lock washers.
- Tag and mark right terminal board and right marker strip.
- Repeat above removal steps for left terminal board and left marker strip.



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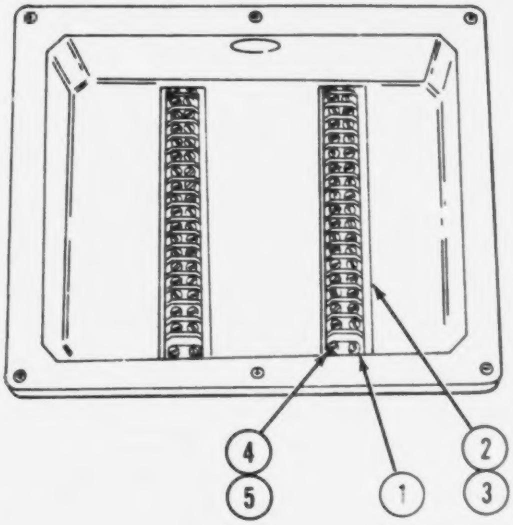
16-5 JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4 — Continued

E. JUNCTION BOX JB4 ASSEMBLY REASSEMBLY

INSTALL TWO 4TB TERMINAL MARKER STRIPS AND TWO 4TB TERMINAL BOARDS ON JUNCTION BOX JB4 ASSEMBLY.

- Remove tags from right terminal board (1) and right marker strip (2).
- Position right marker strip (2) on mounting bar (3) with numbers to the right of mounting bar.
- Apply sealing compound to threads of four screws (4).
- Install right marker strip (2), right terminal board (1), four new lock washers (5), and screws (4) on mounting bar (3). Use 1/4 inch flat tip screwdriver.
- Repeat above installation steps for left terminal board and left marker strip.

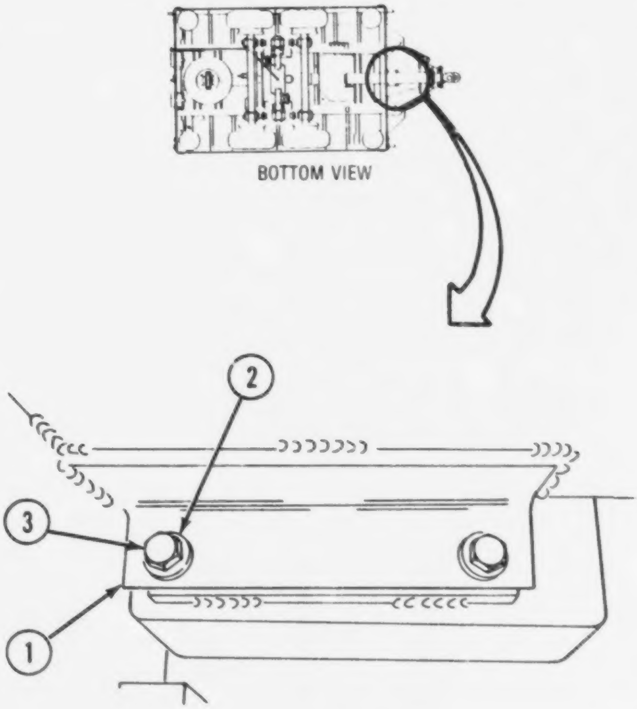


F. JUNCTION BOX JB4 ASSEMBLY INSTALLATION

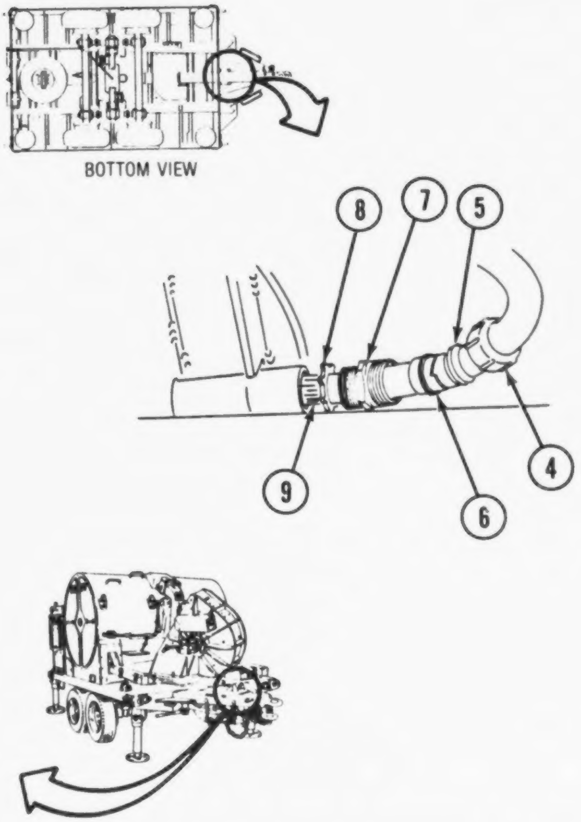
WARNING

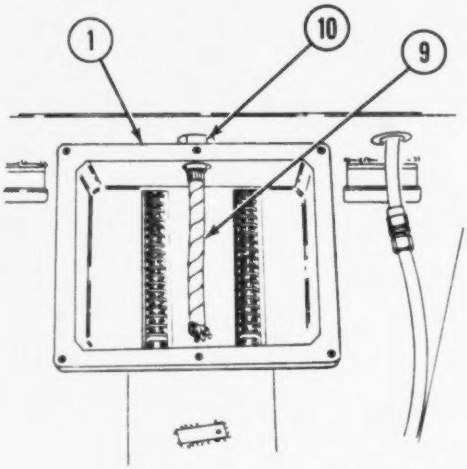
Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

1. INSTALL JUNCTION BOX JB4 ASSEMBLY ON CHASSIS.
   - Install JB4 assembly (1), four new lock washers (2), and screws (3) on chassis. Use 9/16 inch socket with ratchet handle.

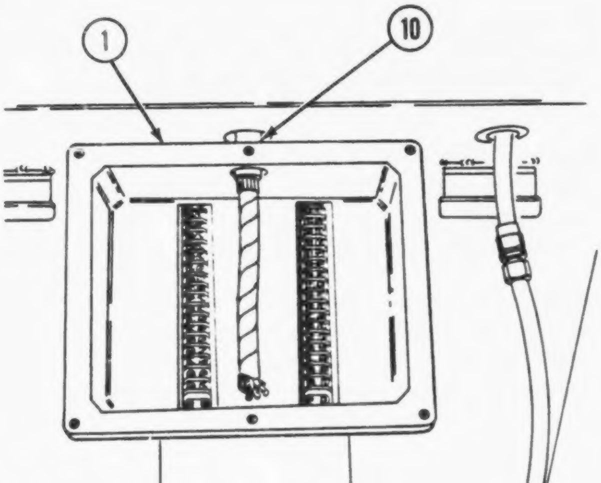


2. INSTALL WIRE BUNDLE ASSEMBLY J4 IN JUNCTION BOX JB4 ASSEMBLY.
   - Install new connector hub (4), new sealing ring (5), new sleeve (6), new 45° elbow (7), and new lock nut (8) on Wire Bundle J4 (9).
   - Install straight conduit (10) on Wire Bundle J4 (9).
   - Install Wire Bundle J4 (9) in JB4 assembly (1).





- Apply sealing compound to threads of straight conduit (10).
- Install straight conduit (10) on JB4 assembly (1). Use 10 inch pipe wrench.



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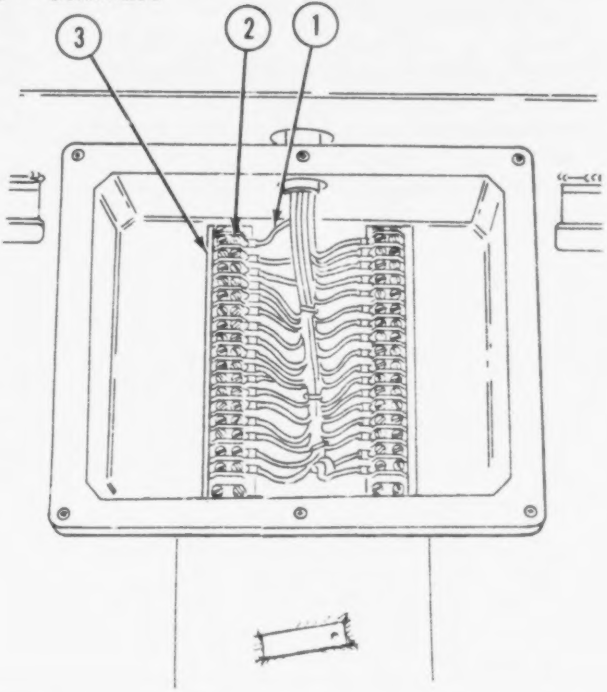
F. JUNCTION BOX JB4 ASSEMBLY INSTALLATION — Continued

3. INSTALL 30 WIRE BUNDLE ASSEMBLY J4 LEADS ON TERMINAL BOARD 4TB.
   - Remove masking tape from Wire Bundle J4 leads (1).
   - Install 30 Wire Bundle J4 leads (1) and screws (2) on Terminal Board 4TB (3). Use 1/4 inch flat tip screwdriver. (See Junction Box JB4 Assembly Wiring Diagram, Page 16-141.)
   - Remove tags from leads.



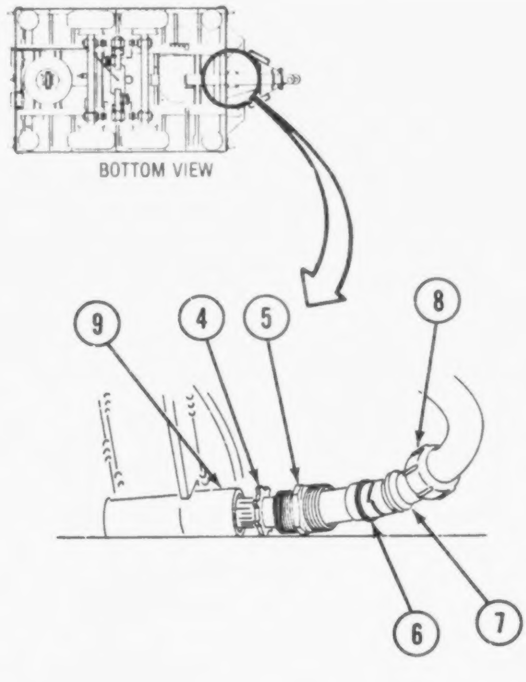
WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

4. INSTALL LIQUIDTIGHT CONNECTOR ON STRAIGHT CONDUIT.
   - Install lock nut (4), 45° elbow (5), sleeve (6), sealing ring (7), and connector hub (8) on straight conduit (9). Use slip joint pliers.

5. POSITION CONNECTOR ASSEMBLY J4 CABLE IN JUNCTION BOX JB4 ASSEMBLY. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-142.)

6. INSTALL 30 CONNECTOR ASSEMBLY J4 LEADS ON TERMINAL BOARD 4TB. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-143.)



7. INSTALL CORD GRIP CONNECTOR ON JUNCTION BOX JB4 ASSEMBLY. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-143.)
8. INSTALL COVER ON JUNCTION BOX JB4 ASSEMBLY. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-144.)
9. INSTALL CONNECTOR ASSEMBLY J4 CABLE AND CLAMP ON CHASSIS. (SEE JUNCTION BOX JB4 ASSEMBLY AND CONNECTOR ASSEMBLY J4, PAGE 16-144.)

NOTE

FOLLOW-ON MAINTENANCE:
Install Cover Plate. (See TM 9-1095-205-20.)
Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)
Close Right Battery Box Cover. (See TM 9-1095-205-10.)

END OF TASK

16-6 LOAD ADVANCE/UNLOAD SWITCH ASSEMBLY

DESCRIPTION

This task covers:
A. REMOVAL (p 16-153)
B. INSTALLATION (p 16-156)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit
  - 5180-00-177-7033:
    - 1/4 inch flat tip screwdriver
    - 3/8 inch flat tip screwdriver
    - 7/16 inch open end wrench
    - 7/16 inch socket
    - 5 inch extension
    - Ratchet handle
    - Putty knife

Materials/Parts:
- Self-locking nut (2) 5310-00-088-1251
- Gasket 5330-01-143-4915
- Solvent, Item 28, Appendix B
- Rags, Item 22, Appendix B
- Adhesive sealant, Item 2, Appendix B

Personnel Required:
- Electrical repairer

References:
- TM 9-1095-205-10
- TM 9-1095-205-20

OVERVIEW

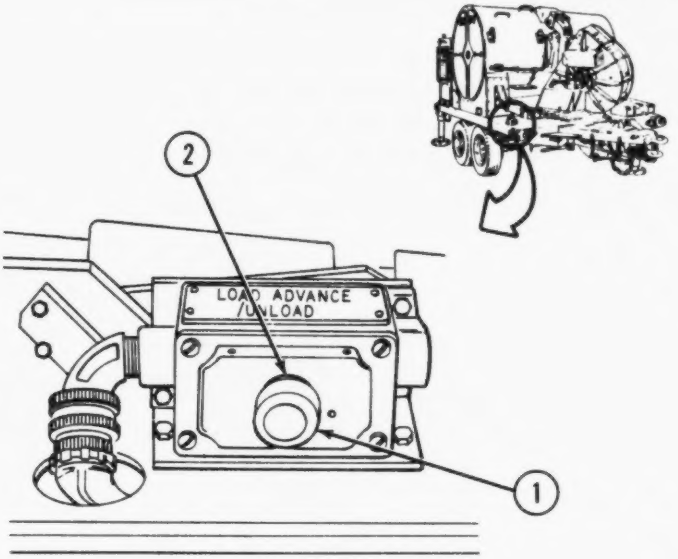
There are two LOAD ADVANCE/UNLOAD switch assemblies, one at the outer side of each infeed chute. Left and right switch assemblies are removed and installed the same way. This procedure shows the right switch assembly.

A. REMOVAL

NOTE

PRELIMINARY PROCEDURES:
Open Right Battery Box Cover. (See TM 9-1095-205-10.)
Remove Negative Lead From No. 2 Battery. (See TM 9-1095-205-20.)

1. REMOVE DUST CAP (1) FROM LOAD ADVANCE/UNLOAD SWITCH (2).



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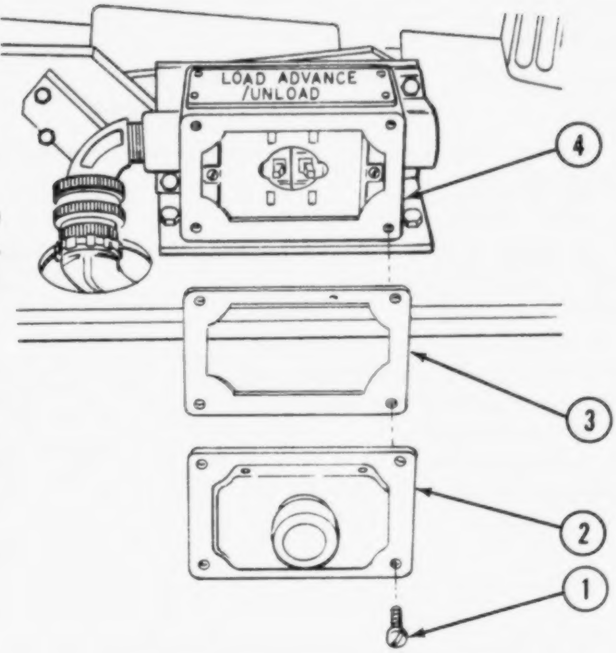
A. REMOVAL — Continued

WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

2. REMOVE PUSHBUTTON PLATE FROM PUSHBUTTON CONTROL ASSEMBLY.
   - Remove four screws (1), pushbutton plate (2), and gasket (3) from control station (4). Use 3/8 inch flat tip screwdriver. Discard gasket.
   - Clean gasket mating surfaces on pushbutton plate (2) and control station (4). Use putty knife, solvent, and rags.



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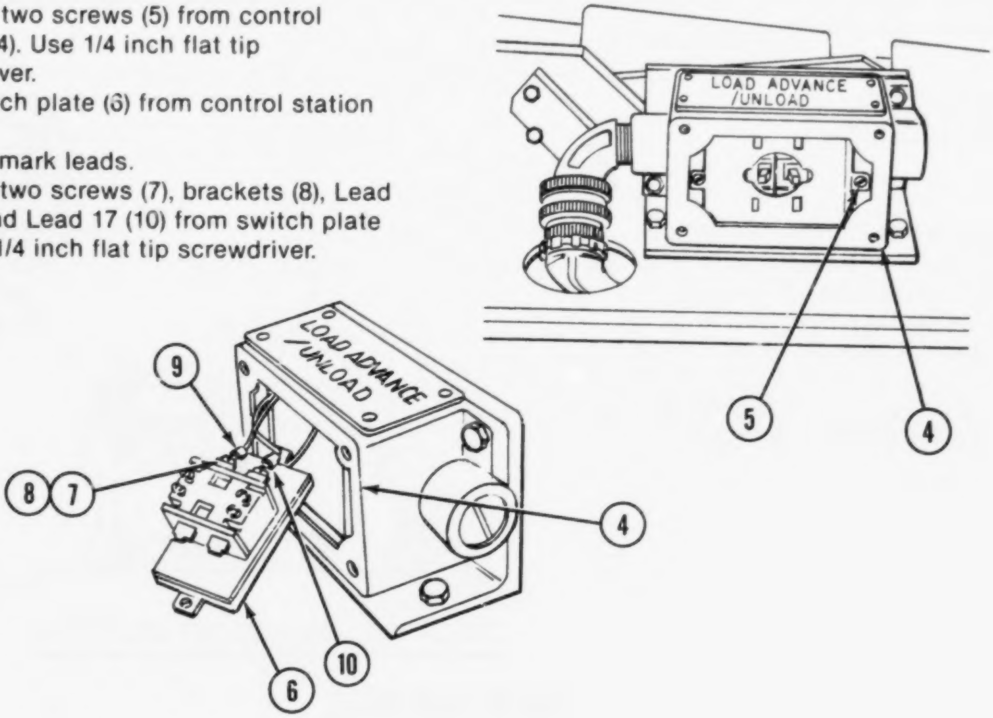
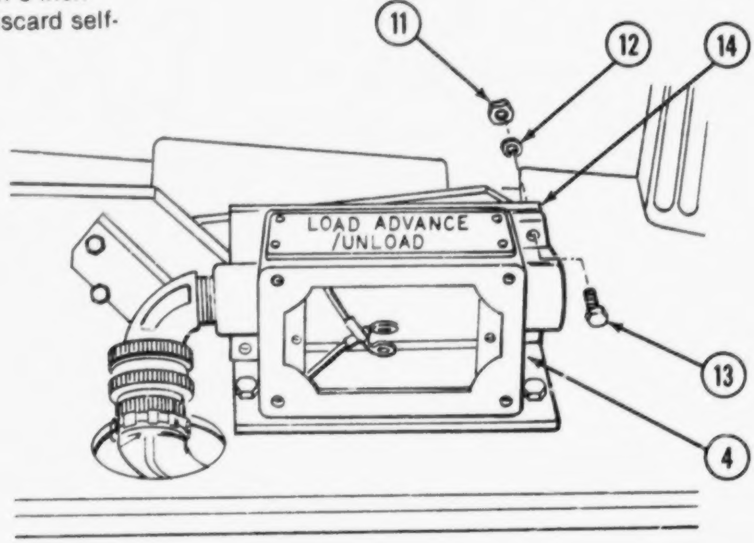
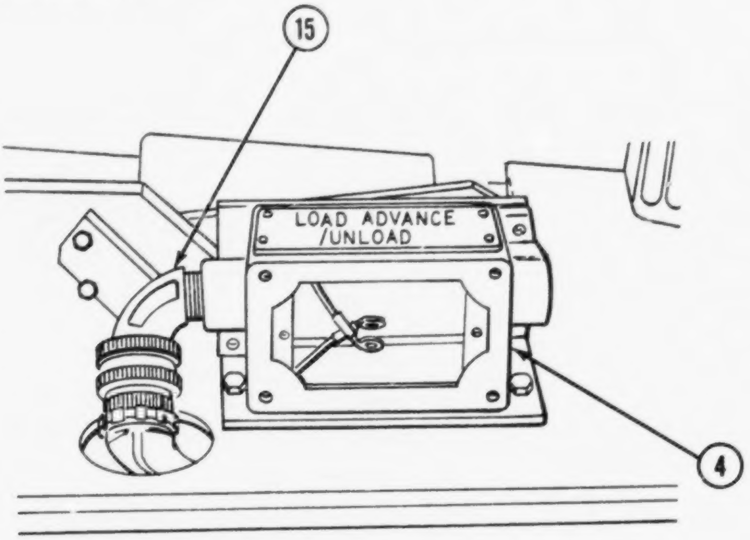
3. REMOVE SWITCH PLATE FROM PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Remove two screws (5) from control station (4). Use 1/4 inch flat tip screwdriver.
   - Pull switch plate (6) from control station (4).
   - Tag and mark leads.
   - Remove two screws (7), brackets (8), Lead 49 (9), and Lead 17 (10) from switch plate (6). Use 1/4 inch flat tip screwdriver.



4. REMOVE PUSHBUTTON CONTROL STATION ASSEMBLY FROM MOUNTING ANGLE.
   - Remove two self-locking nuts (11), washers (12), screws (13), and control station (4) from mounting angle (14). Use 7/16 inch open end wrench and 7/16 inch socket with 5 inch extension and ratchet handle. Discard self-locking nuts.


11
12
14
LOAD ADVANCE
/UNLOAD
13
4

5. REMOVE PUSHBUTTON CONTROL STATION ASSEMBLY FROM CONDUIT ANGLE.
   - Turn control station (4) to left, and remove from conduit angle (15).


15
LOAD ADVANCE
/UNLOAD
4

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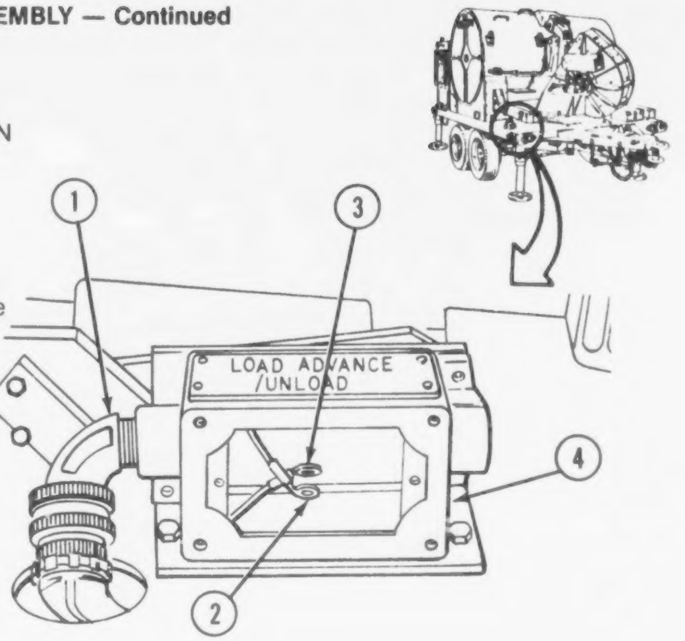
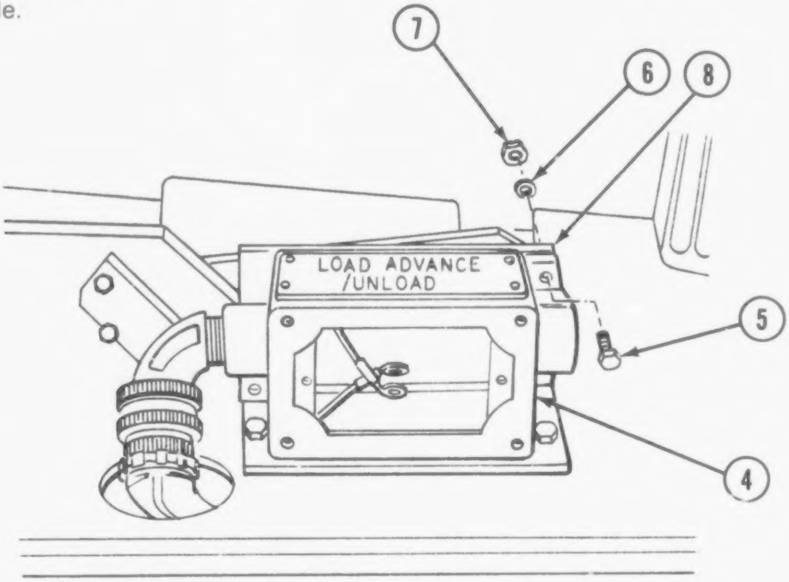
16-6 LOAD ADVANCE/UNLOAD SWITCH ASSEMBLY — Continued

B. INSTALLATION

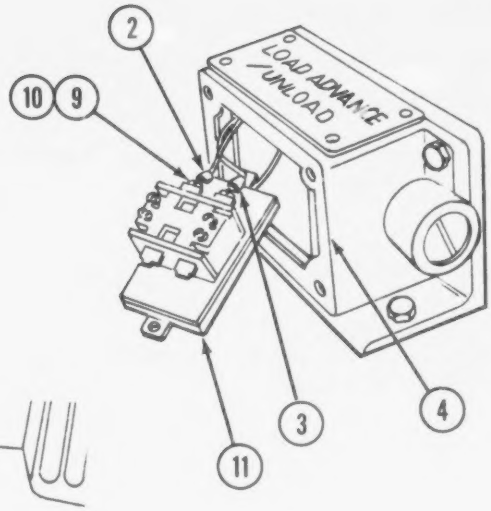
1. INSTALL PUSHBUTTON CONTROL STATION ASSEMBLY ON CONDUIT ANGLE.
   - Apply adhesive sealant to threads of conduit angle (1).
   - Push Lead 49 (2) and Lead 17 (3) into control station (4).
   - Install control station (4) on conduit angle (1).

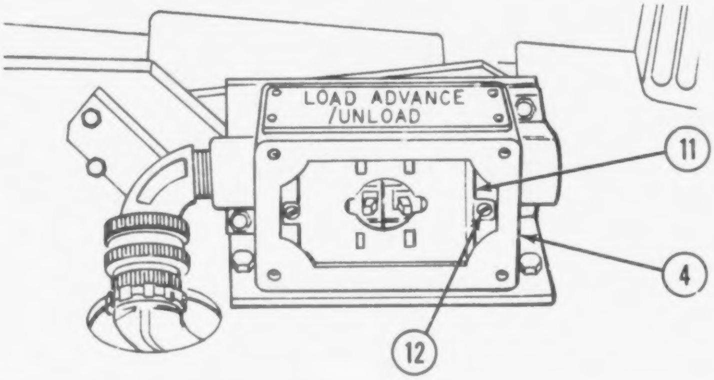


2. INSTALL PUSHBUTTON CONTROL STATION ASSEMBLY ON MOUNTING ANGLE.
   - Install control station (4), two screws (5), washers (6), and new self-locking nuts (7) on mounting angle (8). Use 7/16 inch open end wrench and 7/16 inch socket with 5 inch extension and ratchet handle.



3. INSTALL SWITCH PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Install Lead 49 (2), Lead 17 (3), two brackets (9), and screws (10) on switch plate (11). Use 1/4 inch flat tip screwdriver.
   - Remove tags from leads.
   - Position switch plate (11) on control station (4).
   - Install switch plate (11) and two screws (12) on control station (4). Use 1/4 inch flat tip screwdriver.


2
10
9
LOAD ADVANCE /UNLOAD
11
3
4


LOAD ADVANCE /UNLOAD
11
4
12

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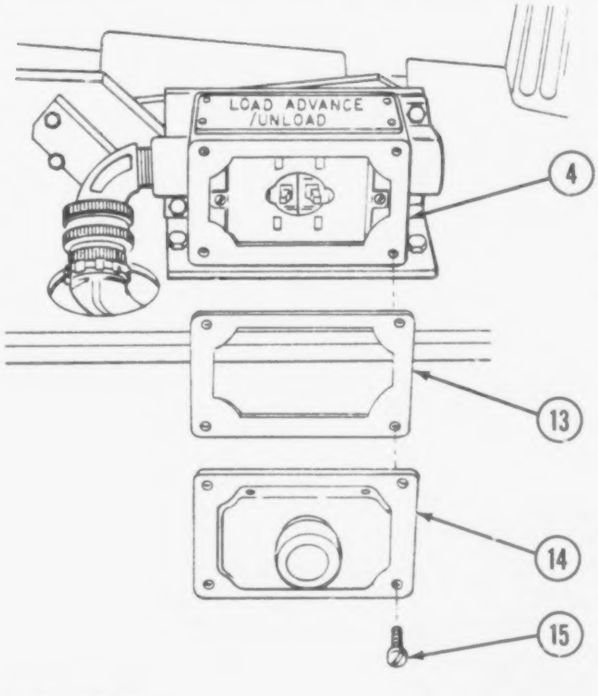
4. INSTALL PUSHBUTTON PLATE ON PUSHBUTTON CONTROL STATION ASSEMBLY.
   - Apply adhesive sealant to both sides of new gasket (13).
   - Install gasket (13), pushbutton plate (14), and four screws (15) on control station (4). Use 3/8 inch flat tip screwdriver.


LOAD ADVANCE /UNLOAD
4
13
14
15

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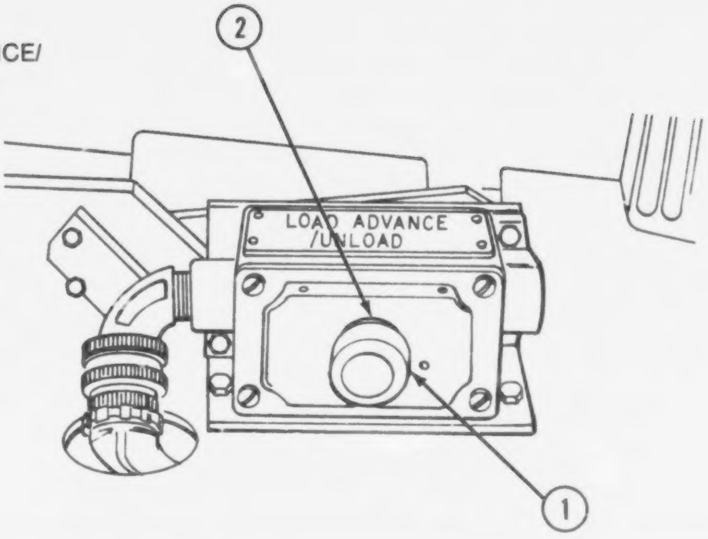
B. INSTALLATION — Continued

5. INSTALL DUST CAP (1) ON LOAD ADVANCE/ UNLOAD SWITCH (2).



NOTE

FOLLOW-ON MAINTENANCE:

Install Negative Lead On No. 2 Battery. (See TM 9-1095-205-20.)

Close Right Battery Box Cover. (See TM 9-1095-205-10.)

END OF TASK

CHAPTER 17

CHASSIS (DIRECT SUPPORT)

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

17-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

17-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are authorized for the M128 Ground Vehicle Mine Dispenser.

17-3 REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list TM 9-1095-205-34P, covering direct support and general support maintenance for this equipment.

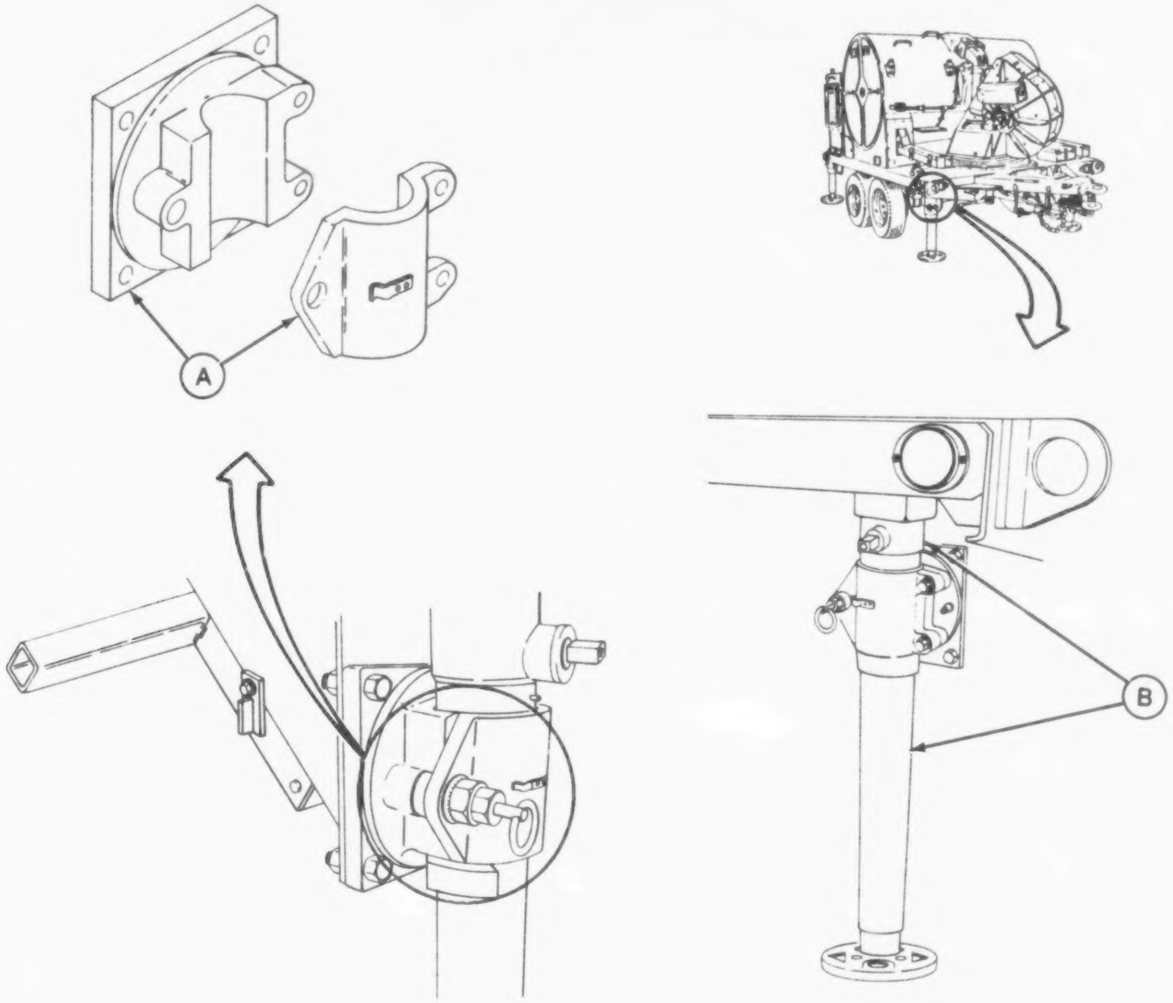
Section II. MAINTENANCE PROCEDURES

17-4 LEVELING SUPPORT JACK ASSEMBLY (FUNCTIONAL DESCRIPTION)

The dispenser has four retractable jacks, one mounted at each corner of the chassis. The jacks support the chassis when the dispenser is parked and during maintenance.

Ⓐ **SWIVEL ASSEMBLY.** Pivots jack under frame for stowage, or into vertical position for use. Swivel base mounts on chassis frame at each corner of chassis. Swivel cap with pin assembly holds jack assembly to swivel base.

Ⓑ **JACK ASSEMBLY.** Stows under chassis frame. Pivots to vertical position to support chassis. Consists of jack pad, inner tube and housing, screw shaft, and gear assembly. Crank lowers and raises housing attached to swivel assembly. Jack assembly must be removed to access swivel assembly.



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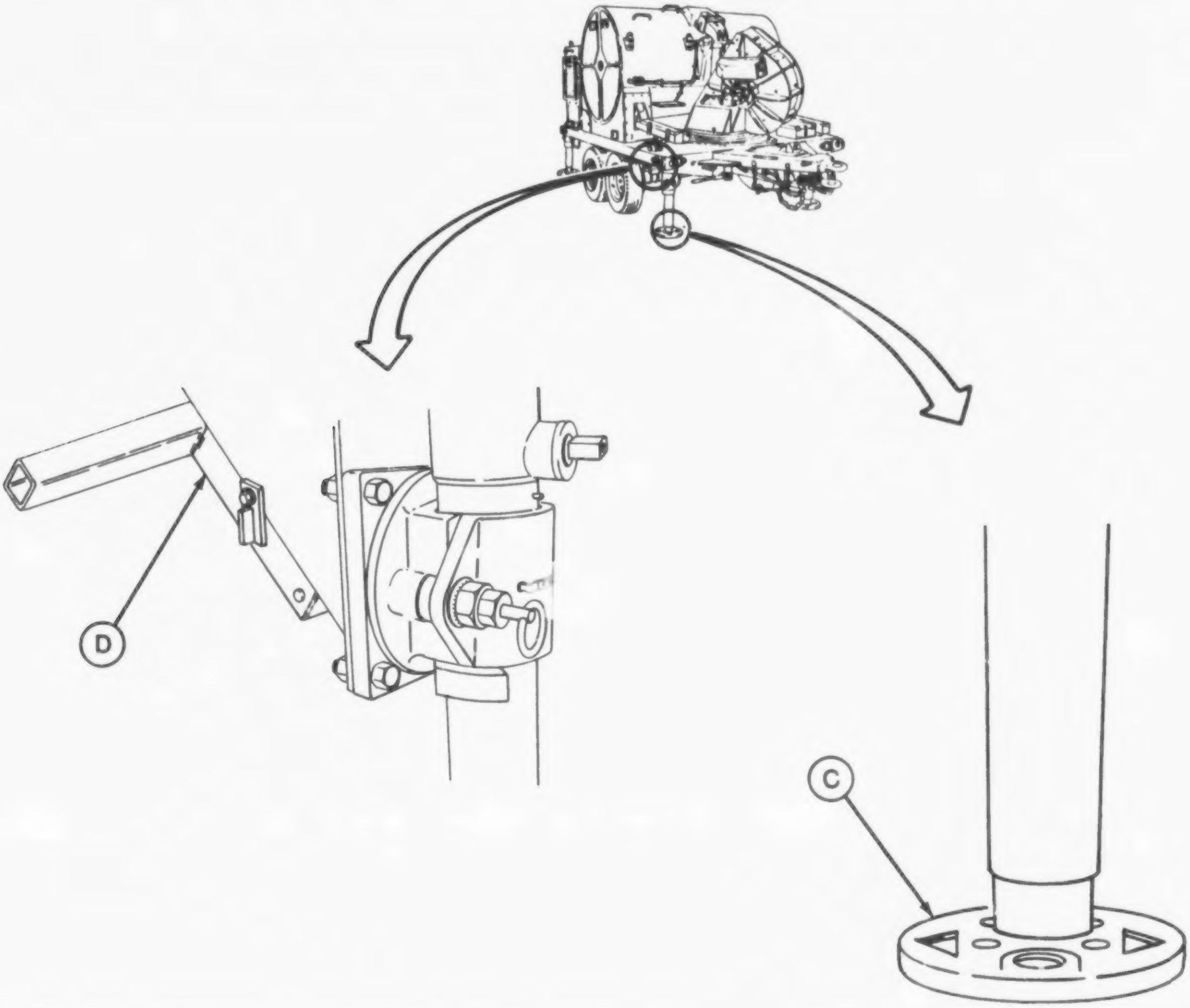
17-4 LEVELING SUPPORT JACK ASSEMBLY (FUNCTIONAL DESCRIPTION) — Continued

Ⓒ JACK PAD. Supports jack assembly on ground. Metal pad connects to inner tube of jack assembly.

Ⓓ JACK CRANK. Stows under chassis frame. Raises and lowers jack assembly by activating gears. Gears activate jack screw that connects to inner tube housing. Jack screw raises or lowers jack housing and pad.



17-5 REACH TUBE

DESCRIPTION

This task covers:
A. REMOVAL (p 17-5)
B. INSTALLATION (p 17-7)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - 1 1/8 inch socket
  - 9/16 inch socket
  - Hinged handle
- 1 1/8 inch box end wrench 5120-00-895-9577
- Lift truck 4910-00-554-5983
- Goggles 4240-00-269-7912

Materials/Parts:

- Self-locking nut (2) 5310-00-409-3333
- Lock washer (2) 5310-00-637-9541
- Lubricating oil, Item 17, Appendix B

Personnel Required:

- Mechanic
- Helper

References:

- TM 9-1095-205-10
- TM 9-1095-205-20

A. REMOVAL

NOTE

PRELIMINARY PROCEDURES:

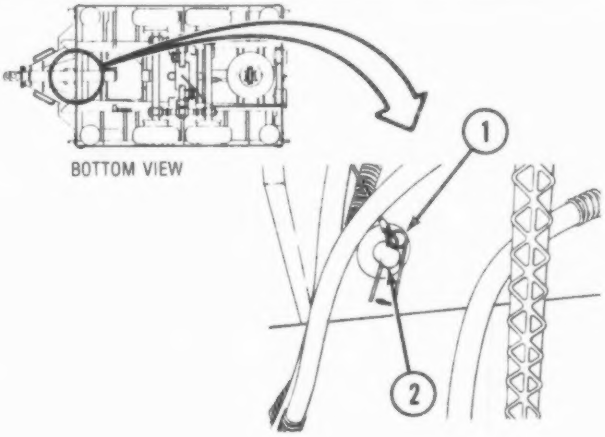
Remove Safety Chain Assembly. (See TM 9-1095-205-20.)

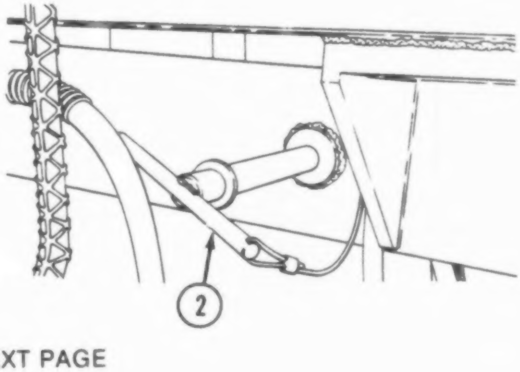
Remove Air Inertia Brake Actuator. (See TM 9-1095-205-20.)

WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

1. REMOVE RETAINING PIN FROM CHASSIS.
   - Remove safety clip (1) from retaining pin (2).
   - Remove retaining pin (2) from chassis.





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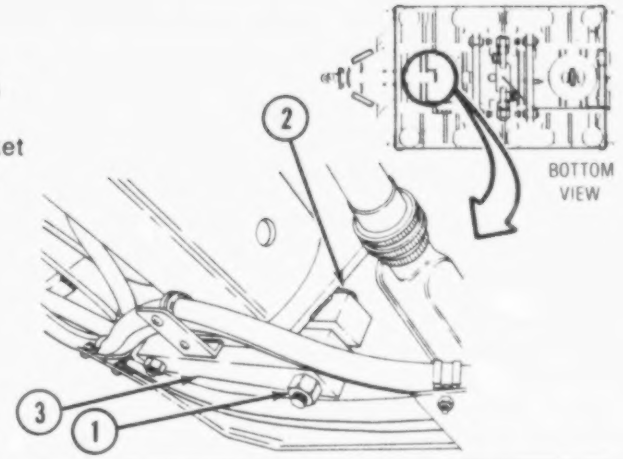
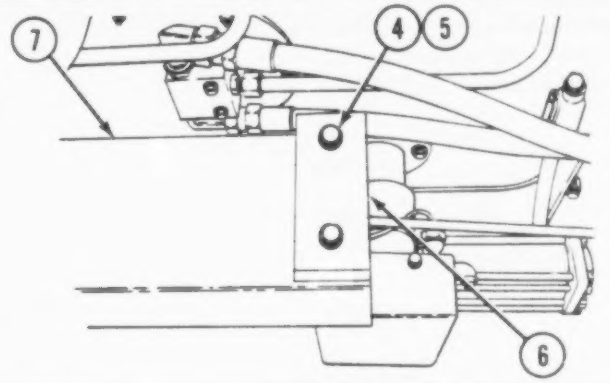
A. REMOVAL — Continued

2. REMOVE BAR FROM CHASSIS.
   - Remove two self-locking nuts (1), screws (2), and bar (3) from chassis. Use 1 1/8 inch box end wrench and 1 1/8 inch socket with hinged handle. Discard self-locking nuts.



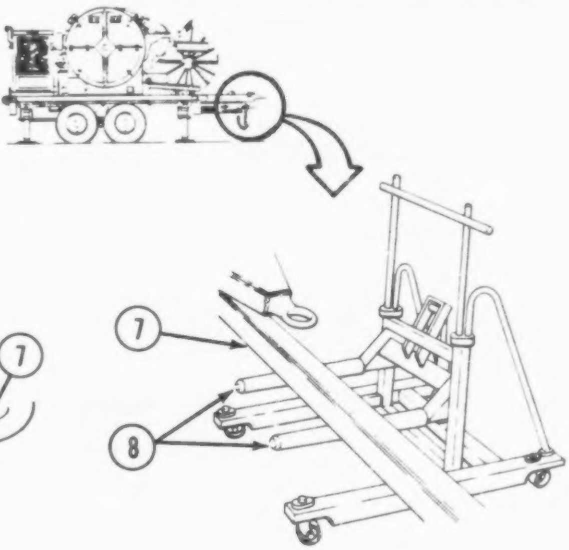
3. REMOVE STOP FROM REACH TUBE.
   - Remove two screws (4), lock washers (5), and stop (6) from reach tube (7). Use 9/16 inch socket with hinged handle. Discard lock washers.

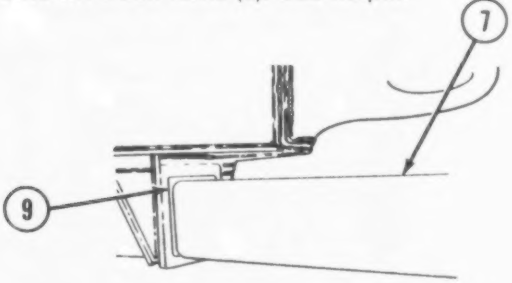


WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

4. REMOVE REACH TUBE FROM CHASSIS.
   - Position lift truck forks (8) under and touching reach tube (7).
   - Pull reach tube (7) from chassis opening (9) and onto lift truck forks (8). Use helper.



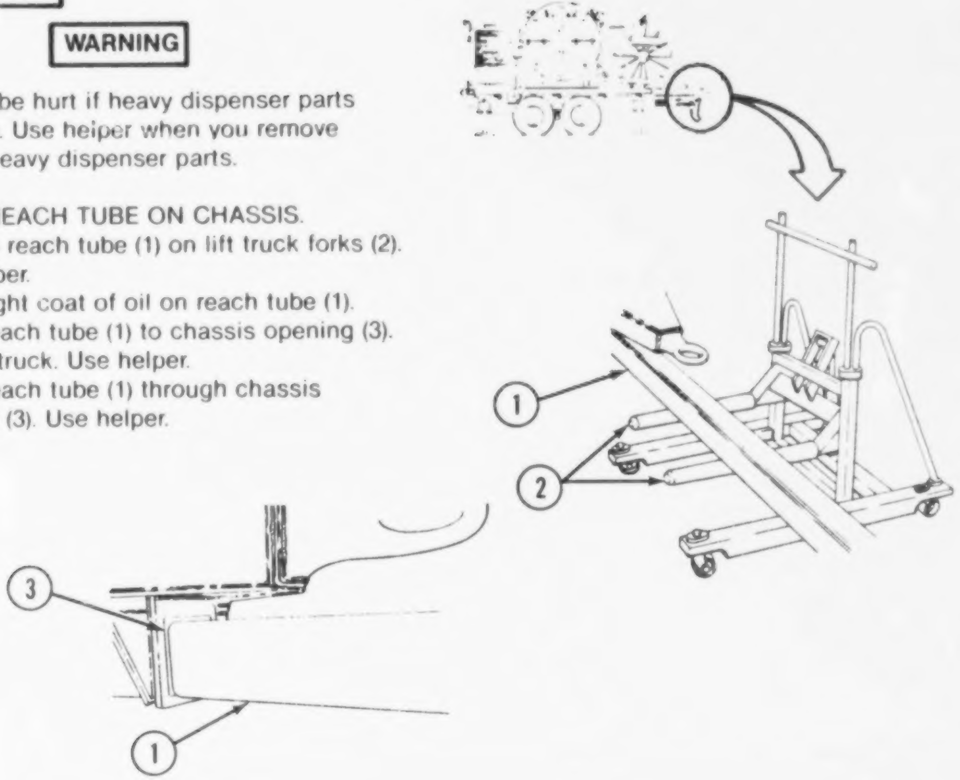


B. INSTALLATION

WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

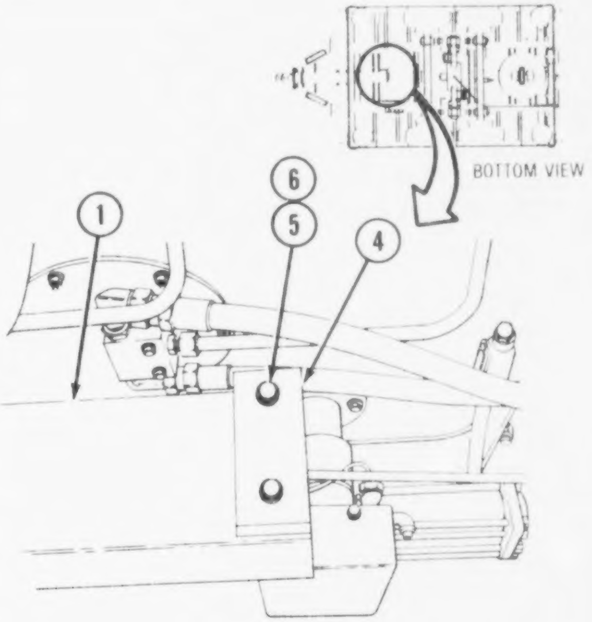
1. INSTALL REACH TUBE ON CHASSIS.
   - Position reach tube (1) on lift truck forks (2). Use helper.
   - Apply light coat of oil on reach tube (1).
   - Raise reach tube (1) to chassis opening (3). Use lift truck. Use helper.
   - Insert reach tube (1) through chassis opening (3). Use helper.



WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

2. INSTALL STOP ON REACH TUBE.
   - Install stop (4), two new lock washers (5), and screws (6) on reach tube (1). Use 9/16 inch socket with hinged handle.



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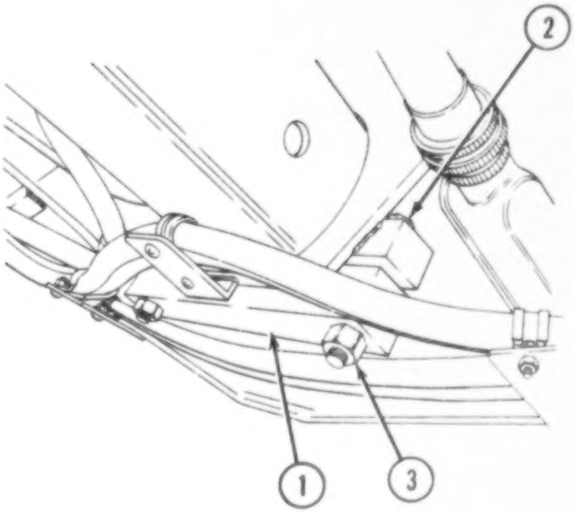
B. INSTALLATION — Continued

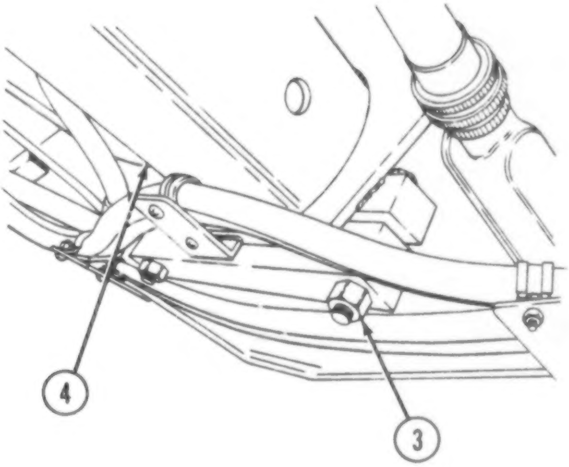
3. INSTALL BAR ON CHASSIS.
   - Install bar (1), two screws (2), and new self-locking nuts (3) on chassis. Use 1 1/8 inch socket with hinged handle. Do not tighten.



NOTE

Threads on screws must protrude beyond self-locking nuts.

4. ADJUST BAR.
   - Tighten two self-locking nuts (3) equally until reach tube (4) will no longer slide. Use 1 1/8 inch socket with hinged handle.
   - Loosen two self-locking nuts (3) in equal 1/4 turn increments until reach tube (4) slides freely. Use 1 1/8 inch box end wrench and 1 1/8 inch socket with hinged handle.



5. INSTALL RETAINING PIN IN CHASSIS.
   - Aline chassis retaining pin holes (5) and reach tube retaining pin holes (6).
   - Install retaining pin (7) in chassis.
   - Install safety clip (8) on retaining pin.

NOTE

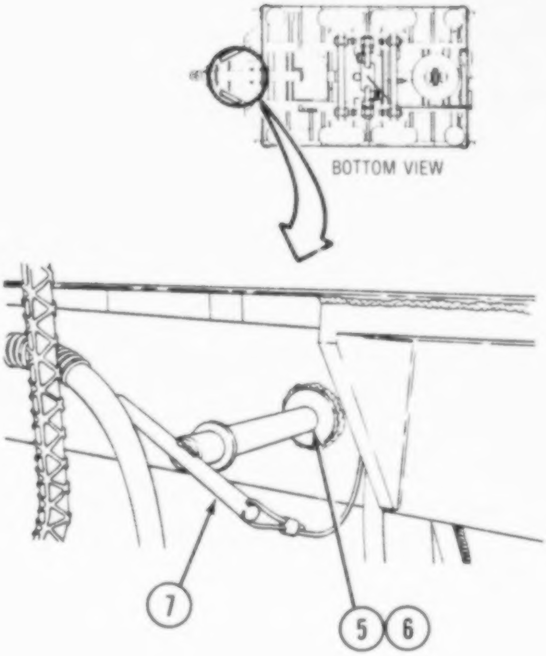
FOLLOW-ON MAINTENANCE:

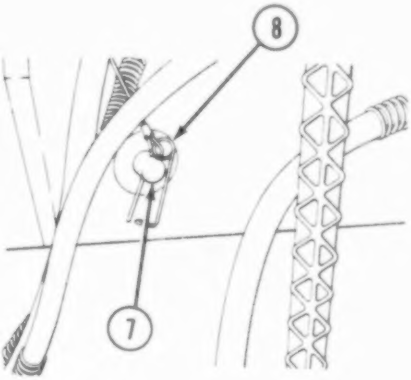
Install Safety Chain Assembly. (See TM 9-1095-205-20.)

Install Air Inertia Brake Actuator. (See TM 9-1095-205-20.)

Stow Reach Tube. (See TM 9-1095-205-10.)

Bleed Brake System. (See TM 9-1095-205-20.)





END OF TASK

17-6 JACK CRANK HANDLE RETAINING LATCH

DESCRIPTION

This task covers:
A. REMOVAL (p 17-11)
B. INSTALLATION (p 17-12)

INITIAL SETUP

Tools and Special Tools:
General mechanic's tool kit
5180-00-177-7033:
5/8 inch socket
Ratchet handle
Goggles 4140-00-269-7912

Reference:
TM 9-1095-205-10

OVERVIEW

There are four jack crank handle retaining latches on the dispenser. Each latch is removed and installed the same way. This procedure shows right front latch.

A. REMOVAL

NOTE

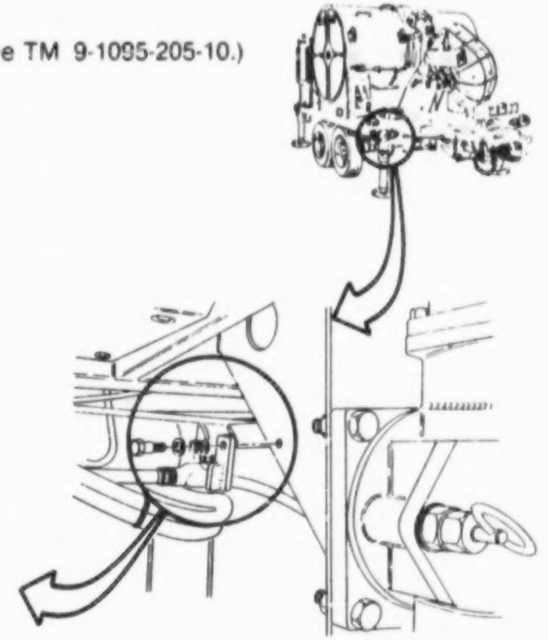
PRELIMINARY PROCEDURE:
Unstow Leveling Jack Hand Crank. (See TM 9-1095-205-10.)

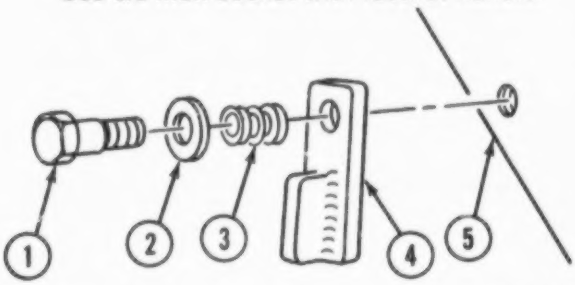
WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

REMOVE JACK CRANK HANDLE RETAINING LATCH FROM SUPPORT BRACKET.

- Remove bolt (1), washer (2), spring (3), and retaining latch (4) from support bracket (5). Use 5/8 inch socket with ratchet handle.





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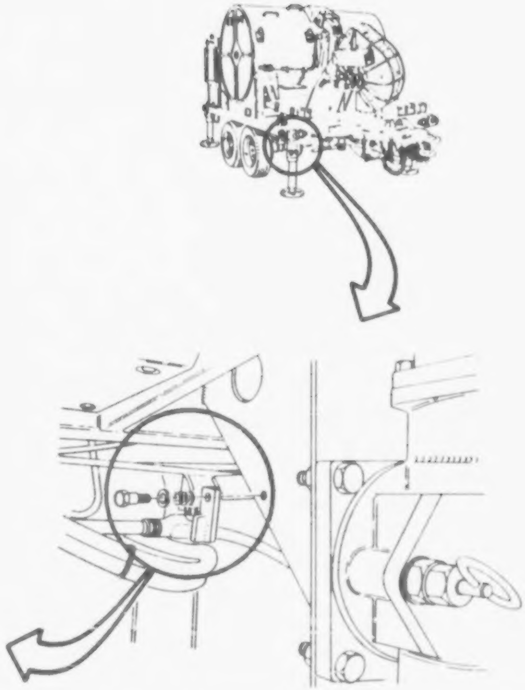
17-6 JACK CRANK HANDLE RETAINING LATCH — Continued

B. INSTALLATION

WARNING

Dirt and dispenser fluids may hurt your eyes. Wear goggles when working under the chassis.

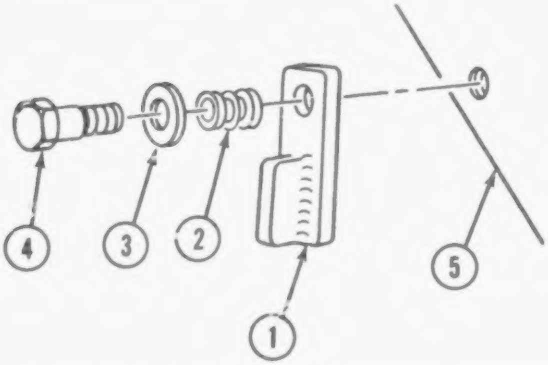


INSTALL JACK CRANK HANDLE RETAINING LATCH ON SUPPORT BRACKET.

- Install retaining latch (1), spring (2), washer (3), and bolt (4) on support bracket (5). Use 5/8 inch socket with ratchet handle.

NOTE

FOLLOW-ON MAINTENANCE:
Stow Leveling Jack Hand Crank. (See TM 9-1095-205-10.)



END OF TASK

17-7 VEHICLE LEVELING SUPPORT JACK ASSEMBLY

DESCRIPTION

This task covers:
A. DISASSEMBLY (p 17-13)
B. REASSEMBLY (p 17-18)

INITIAL SETUP

Tools and Special Tools:
General mechanic's tool kit
5180-00-177-7033:
- Ratchet handle
- 15/16 inch socket
- Pry bar
- Aligning punch
- 5 inch extension
- 1/4 inch flat tip screwdriver
- 1/8 inch pin punch
- 1/4 inch pin punch
- 3/8 inch pin punch
- 3/4 inch straight drive pin punch
- Ball peen hammer
- 7/16 inch box end wrench
- Pocket knife

Mechanical puller 5120-00-595-9305
3/8 inch hex key 5120-00-198-5390
Soft faced hammer 5120-00-903-8555

Materials/Parts:
Self-locking nut 5310-00-225-6408
Key seal 2590-00-860-0535
Pin 5315-00-014-2986
Seal 5330-00-899-5217
Grooved pin (2) 5315-00-068-2498
Pin 5315-00-067-5093
Spring pin 5315-00-690-0544
Grease, Item 11, Appendix B
Lubricating oil (see LO 9-1095-205-12, Item 18, Appendix B
Sealing compound, Item 26, Appendix B

Personnel Required:
Mechanic
Helper

Referances:
LO 9-1095-205-12
TM 9-1095-205-20

A. DISASSEMBLY

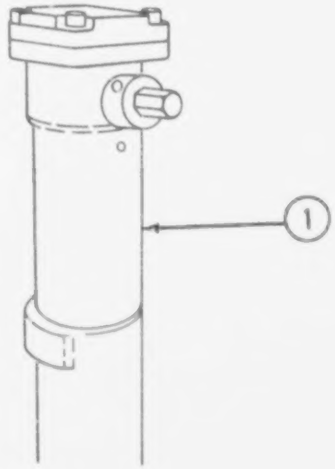
NOTE

PRELIMINARY PROCEDURE:
Remove Vehicle Leveling Support Jack Assembly. (See TM 9-1095-205-20.)

WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

1. EXTEND VEHICLE LEVELING SUPPORT JACK ASSEMBLY.
   - Extend jack assembly (1) fully. Use hand crank. Use helper.



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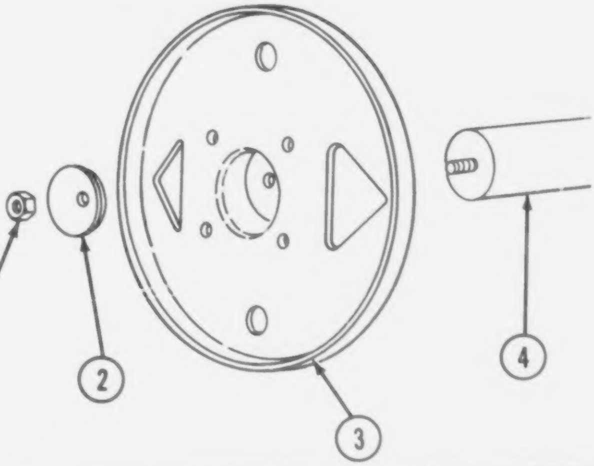
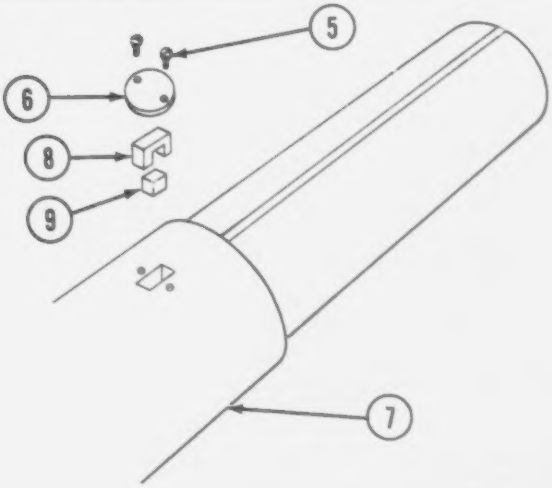
A. DISASSEMBLY — Continued

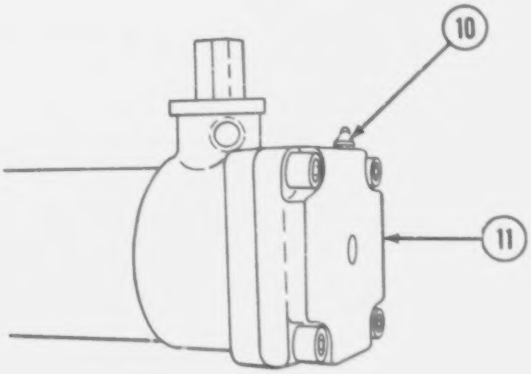
2. REMOVE GROUND PAD FROM VEHICLE LEVELING SUPPORT JACK ASSEMBLY.
   - Remove self-locking nut (1), cup (2), and ground pad (3) from jack assembly (4). Use 15/16 inch socket with 5 inch extension and ratchet handle. Use helper. Discard self-locking nut.



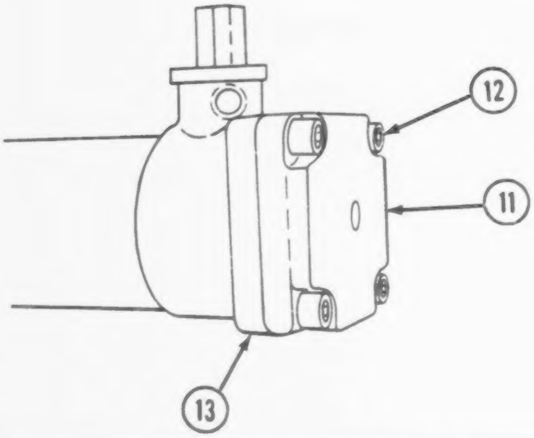
3. REMOVE LEVELING JACK KEY FROM LEVELING JACK ASSEMBLY OUTER HOUSING.
   - Remove two screws (5) and leveling jack key cover (6) from outer housing (7). Use 1/4 inch flat tip screwdriver.
   - Remove key (8) from outer housing (7). Use pocket knife.
   - Remove key seal (9) from key (8). Discard key seal.



4. REMOVE LUBRICATION FITTING FROM GEAR HOUSING COVER ASSEMBLY.
   - Remove lubrication fitting (10) from cover assembly (11). Use 7/16 inch box end wrench.



5. REMOVE GEAR HOUSING COVER ASSEMBLY FROM LEVELING JACK PINION ASSEMBLY HOUSING.
   - Remove four screws (12) and cover assembly (11) from pinion assembly housing (13). Use 3/8 inch hex key.



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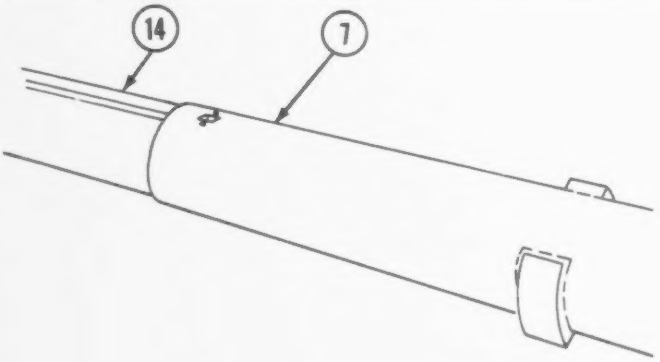
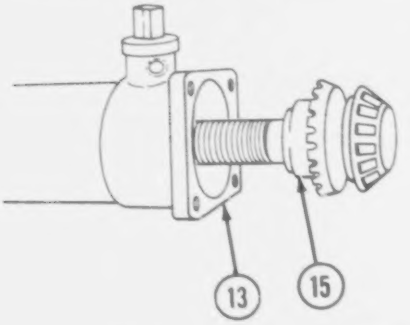
6. PUSH INNER LEVELING JACK TUBE (14) INTO LEVELING JACK ASSEMBLY OUTER HOUSING (7) UNTIL THRUST COLLAR (15) EXTENDS FROM LEVELING JACK PINION ASSEMBLY HOUSING (13).





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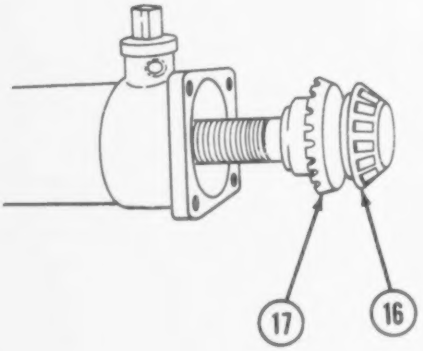
7. REMOVE CONE BEARING FROM GEAR.
   - Remove bearing (16) from gear (17). Use mechanical puller.



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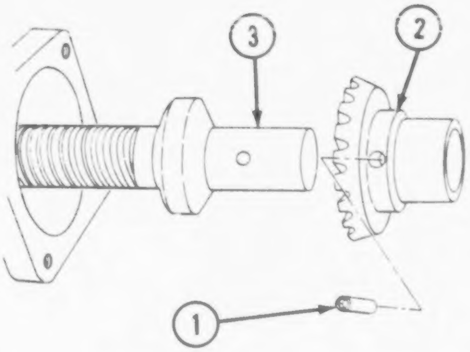
A. DISASSEMBLY -- Continued

8. REMOVE GEAR FROM LEVELING JACK SCREW.
   - Remove pin (1) from gear (2). Use 1/4 inch pin punch and ball peen hammer. Discard pin.
   - Remove gear (2) from jack screw (3). Use mechanical puller.



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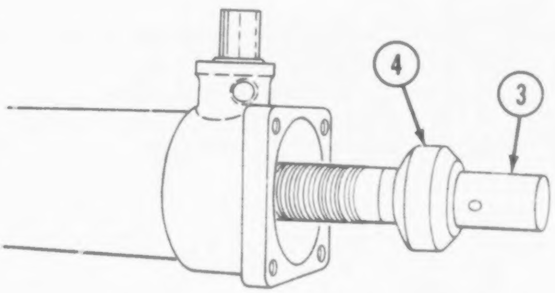
9. REMOVE THRUST COLLAR (4) FROM LEVELING JACK SCREW (3).



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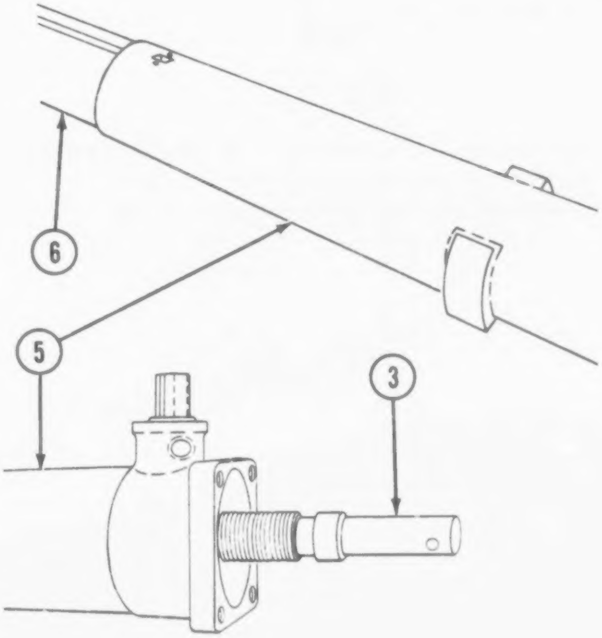
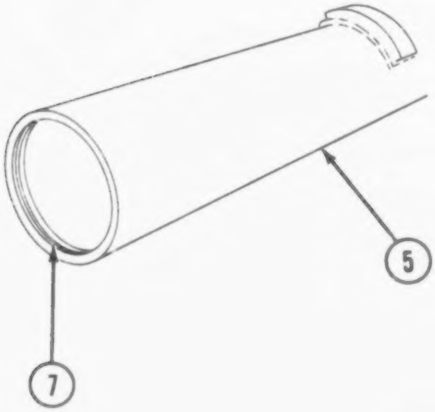
10. REMOVE INNER LEVELING JACK TUBE FROM LEVELING JACK ASSEMBLY OUTER HOUSING.
    - Hold outer housing (5). Use helper.
    - Tap jack screw (3), and remove inner tube (6) from outer housing (5). Use 3/4 inch straight drive punch and soft faced hammer.
    - Remove seal (7) from outer housing (5). Discard seal.

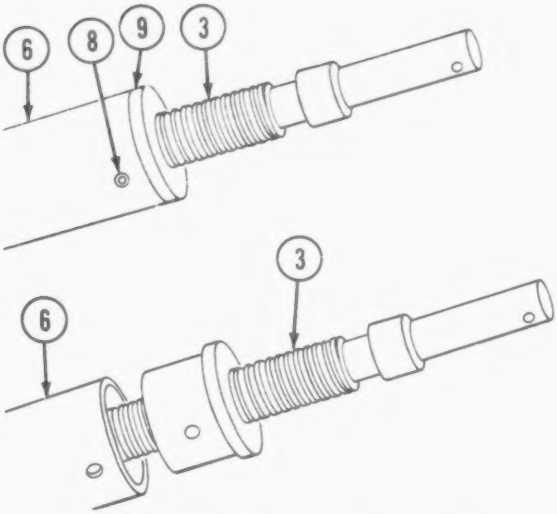




CAUTION

Grooved pins will bind on leveling jack screw if you fully seat them in jack nut. This binding will damage grooved pins and prevent jack nut from turning. Seat grooved pins enough to allow jack nut to turn freely.

11. REMOVE LEVELING JACK SCREW FROM INNER LEVELING JACK TUBE.
    - Tap two grooved pins (8) into jack nut (9) until jack nut turns freely in inner tube (6). Use 3/8 inch pin punch and ball peen hammer.
    - Remove jack screw (3) from inner tube (6). Use pry bar and soft faced hammer.



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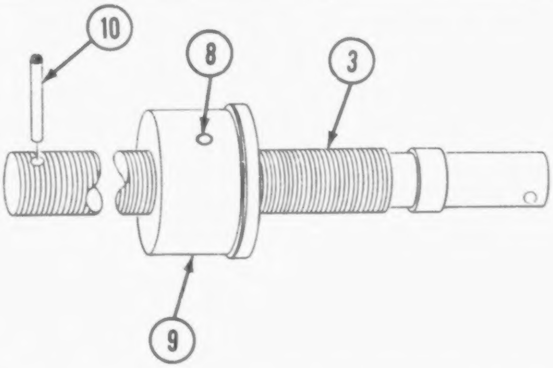
12. REMOVE LEVELING JACK SCREW FROM LEVELING JACK NUT.
    - Remove pin (10) from jack screw (3). Use 1/4 inch pin punch and ball peen hammer. Discard pin.
    - Remove jack screw (3) from jack nut (9).
    - Remove two grooved pins (8) from jack nut (9). Use 3/8 inch pin punch and ball peen hammer. Discard grooved pins.



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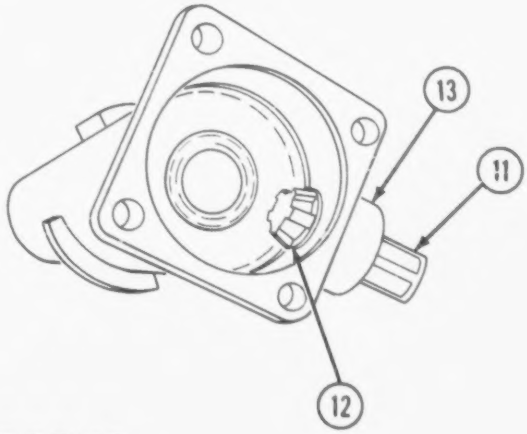
13. REMOVE LEVELING JACK PINION ASSEMBLY FROM LEVELING JACK PINION ASSEMBLY HOUSING.
    - Remove pinion assembly (11) and thrust washer (12) from pinion assembly housing (13). Use soft faced hammer.



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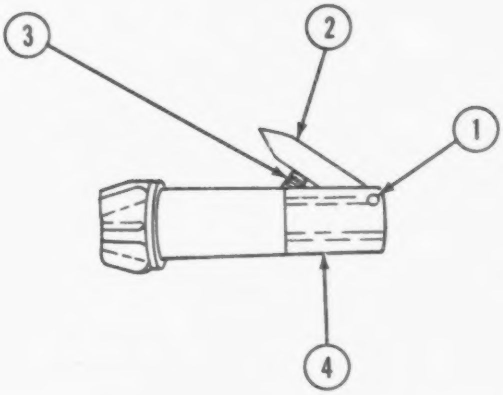
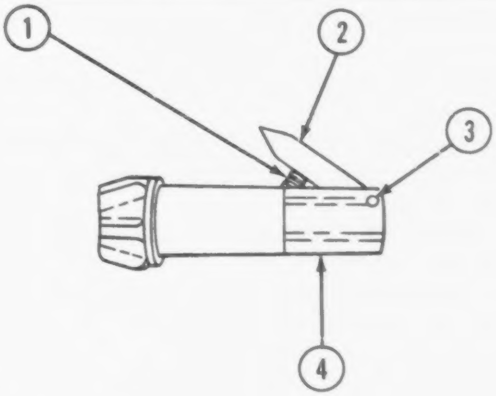
A. DISASSEMBLY — Continued

14. REMOVE LATCH FROM LEVELING JACK PINION ASSEMBLY GEARSHAFT.
    - Remove spring pin (1), latch (2), and spring (3) from pinion assembly gearshaft (4). Use 1/8 inch pin punch and ball peen hammer. Discard spring pin.



B. REASSEMBLY

1. INSTALL LATCH ON LEVELING JACK PINION ASSEMBLY GEARSHAFT.
   - Install spring (1), latch (2), and new spring pin (3) on pinion assembly gearshaft (4). Use 1/8 inch pin punch and ball peen hammer.



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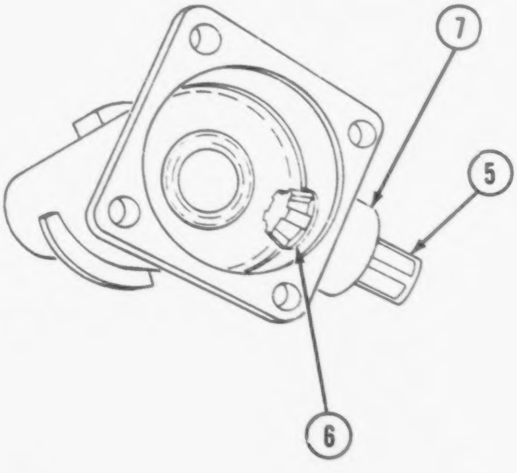
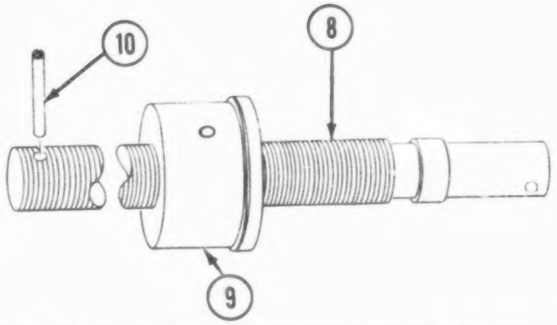
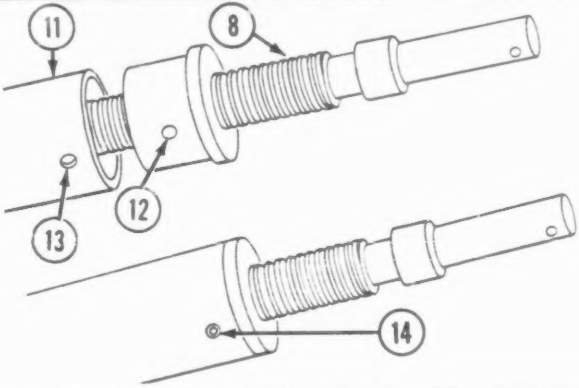
2. INSTALL LEVELING JACK PINION ASSEMBLY ON LEVELING JACK PINION ASSEMBLY HOUSING.
   - Grease pinion assembly (5).
   - Install thrust washer (6) and pinion assembly (5) on pinion assembly housing (7). Use wood block and soft faced hammer.



3. INSTALL LEVELING JACK SCREW ON LEVELING JACK NUT.
   - Install jack screw (8) on jack nut (9).
   - Install new pin (10) in jack screw (8). Use 1/4 inch pin punch and ball peen hammer.



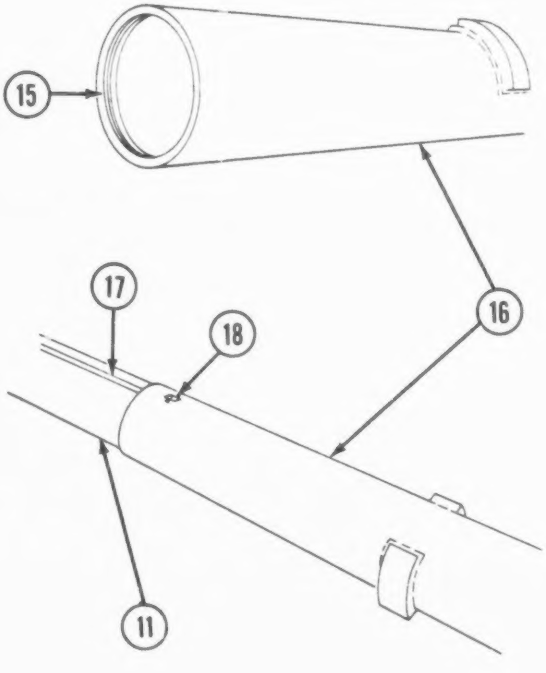
4. INSTALL LEVELING JACK SCREW ON INNER LEVELING JACK TUBE.
   - Apply light coat of grease to jack screw (8).
   - Install jack screw (8) on inner tube (11). Use soft faced hammer.
   - Aline jack nut pin holes (12) with inner tube pin holes (13). Use aligning punch.
   - Install two new grooved pins (14) in inner tube pin holes (13) and flush with inner tube (11). Use 3/8 inch pin punch and ball peen hammer.



CAUTION

Pinion gear teeth in outer housing and jack screw in inner tube will be damaged if not properly meshed. Guide inner tube carefully into outer housing.

5. INSTALL INNER LEVELING JACK TUBE IN LEVELING JACK ASSEMBLY OUTER HOUSING.
   - Apply light coat of oil to new seal (15). (See LO 9-1095-205-12.)
   - Install seal (15) in outer housing (16).
   - Apply light coat of oil to outside of inner tube (11). (See LO 9-1095-205-12.)
   - Install inner tube (11) in outer housing (16) until inner tube groove (17) is seen through key slot (18). Use wood block and soft faced hammer. Use helper.



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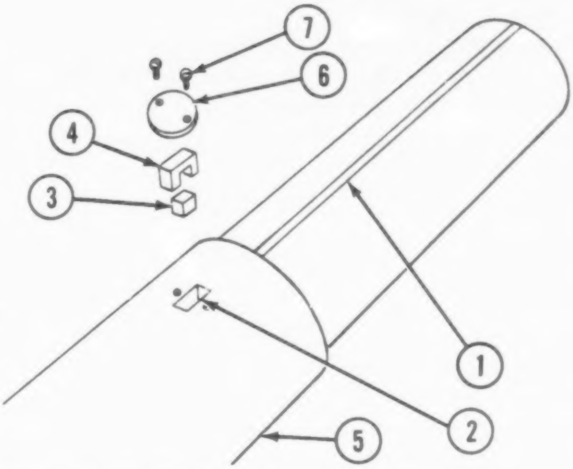
B. REASSEMBLY — Continued

6. INSTALL LEVELING JACK KEY IN LEVELING JACK ASSEMBLY OUTER HOUSING.
   - Aline inner tube groove (1) with key slot (2). Use aligning punch.
   - Install new key seal (3) in key (4).
   - Install key (4) in outer housing (5).
   - Apply light coat of sealing compound to inside of leveling jack key cover (6).
   - Install leveling jack key cover (6) and two screws (7) on outer housing (5). Use 1/4 inch flat tip screwdriver.



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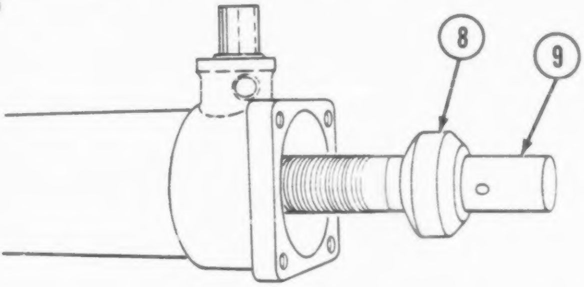
7. INSTALL THRUST COLLAR (8) ON LEVELING JACK SCREW (9).



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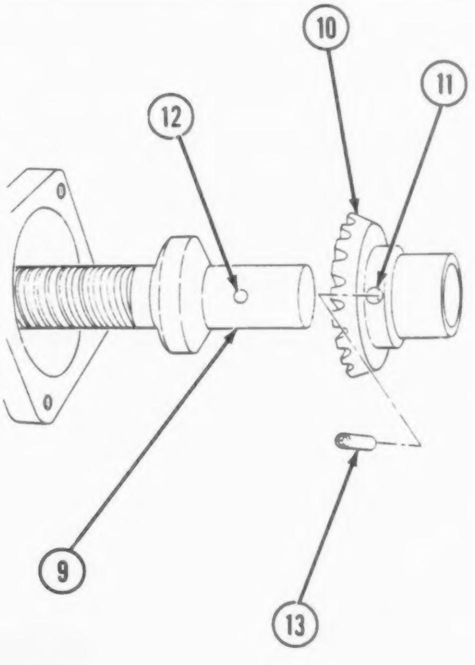
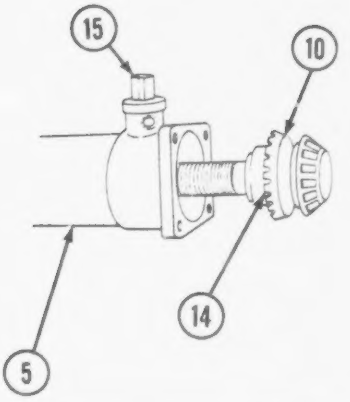
8. INSTALL GEAR ON LEVELING JACK SCREW.
   - Install gear (10) on jack screw (9), with gear pin hole (11) alined with screw pin hole (12).
   - Install new pin (13) in gear (10). Use 1/4 inch pin punch and ball peen hammer.



CAUTION

Gear and pinion assembly gear teeth will be damaged if not properly meshed. Carefully seat gear into pinion assembly gear teeth.

9. INSTALL GEAR IN LEVELING JACK ASSEMBLY OUTER HOUSING.
   - Pack outer housing (5) with grease.
   - Install gear (10) in outer housing (5), with gear teeth (14) seated in gear teeth of leveling jack pinion assembly (15).



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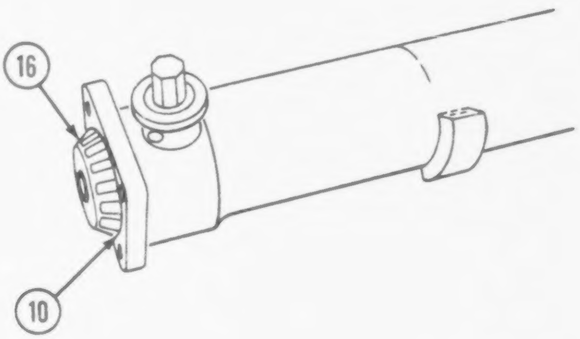
10. INSTALL CONE BEARING ON GEAR.
    - Grease bearing (16).
    - Install bearing (16) on gear (10). Use soft faced hammer.



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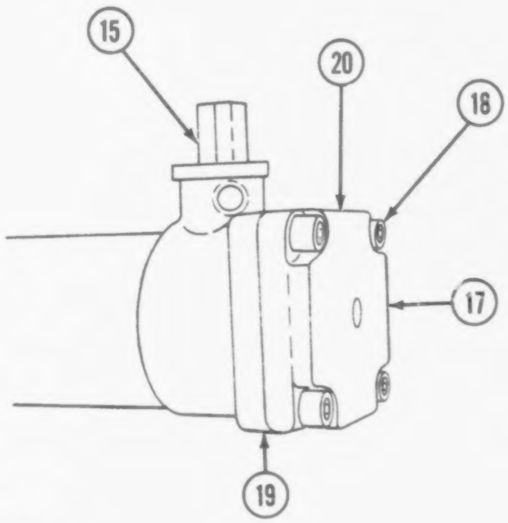
11. INSTALL GEAR HOUSING COVER ASSEMBLY ON LEVELING JACK PINION ASSEMBLY HOUSING.
    - Install cover assembly (17) and four screws (18) on pinion assembly housing (19), with grease fitting hole (20) facing pinion assembly (15). Use 3/8 inch hex key.



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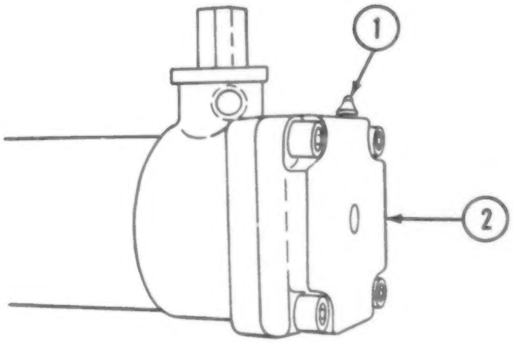
B. REASSEMBLY — Continued

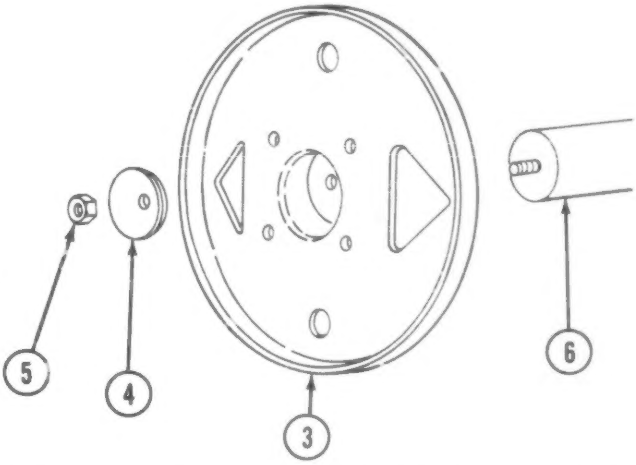
12. INSTALL LUBRICATION FITTING ON GEAR HOUSING COVER ASSEMBLY.
    - Install lubrication fitting (1) on cover assembly (2). Use 7/16 inch box end wrench.



WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

13. INSTALL GROUND PAD ON VEHICLE LEVELING SUPPORT JACK ASSEMBLY.
    - Install ground pad (3), cup (4), and new self-locking nut (5) on jack assembly (6). Use 15/16 inch socket with 5 inch extension and ratchet handle. Use helper.



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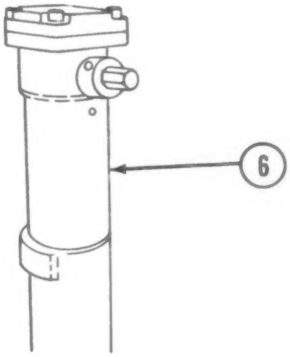
14. RETRACT VEHICLE LEVELING SUPPORT JACK ASSEMBLY.
    - Retract jack assembly (6) fully. Use hand crank. Use helper.

NOTE

FOLLOW-ON MAINTENANCE:

Install Vehicle Leveling Support Jack Assembly. (See TM 9-1095-205-20.)

Lubricate Vehicle Leveling Support Jack Assembly. (See LO 9-1095-205-12.)



END OF TASK

17-8 SWIVEL ASSEMBLY BASE

DESCRIPTION

This task covers: A. DISASSEMBLY (p 17-23)
B. REASSEMBLY (p 17-24)

INITIAL SETUP

Tools and Special Tools:
General mechanic's tool kit
5180-00-177-7033:
9/16 inch socket wrench
2 inch extension
Ratchet handle
Soft faced hammer 5120-00-903-8555
Micrometer 5210-00-540-2973

Materials/Parts:
Lock washer (4) 5310-00-637-9541
Preformed packing 5310-00-263-8007
Rag, Item 22, Appendix B
Grease, Item 11, Appendix B
Shims (19207) 10916511-1

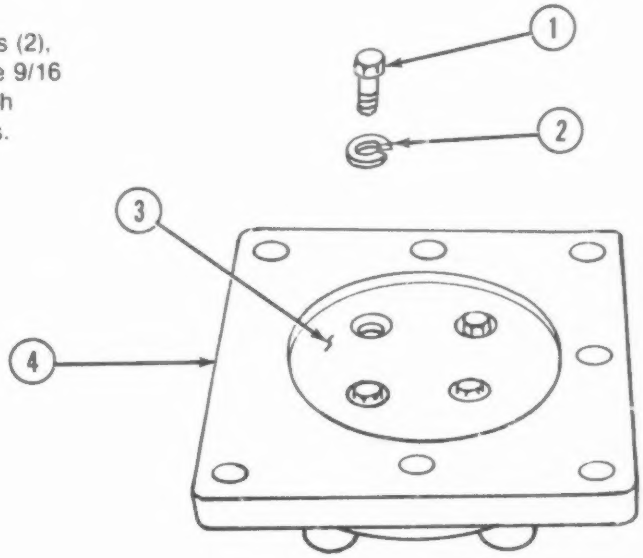
References:
LO 9-1095-205-12
TM 9-1095-205-20

A. DISASSEMBLY

NOTE

PRELIMINARY PROCEDURES:
Remove Vehicle Leveling Support Jack Assembly. (See TM 9-1095-205-20.)
Remove Swivel Assembly Cap And Base. (See TM 9-1095-205-20.)

1. REMOVE PLATE FROM UPPER BASE.
   - Remove four screws (1), lock washers (2), and plate (3) from upper base (4). Use 9/16 inch socket and 2 inch extension with ratchet handle. Discard lock washers.



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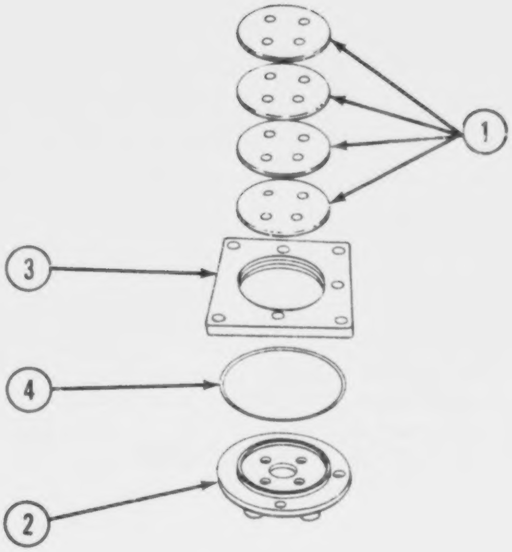
A. DISASSEMBLY — Continued

2. REMOVE UPPER BASE FROM LOWER BASE.
   - Remove shims (1) from lower base (2). Discard shims.
   - Remove upper base (3) from lower base (2). Use soft faced hammer.
   - Remove preformed packing (4) from upper base (3). Discard preformed packing.



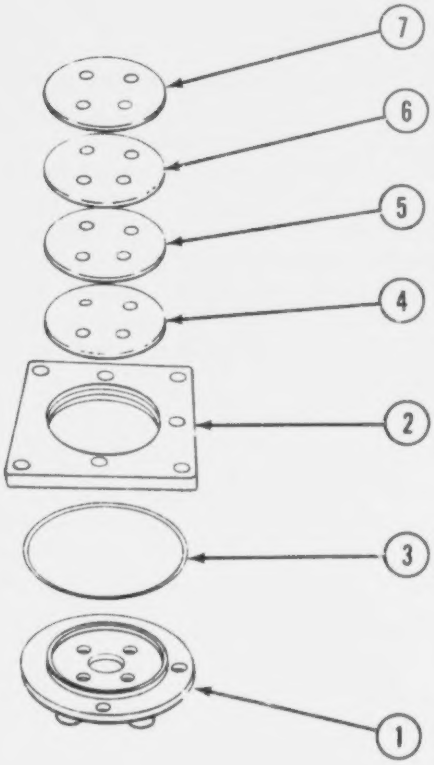
B. REASSEMBLY

NOTE

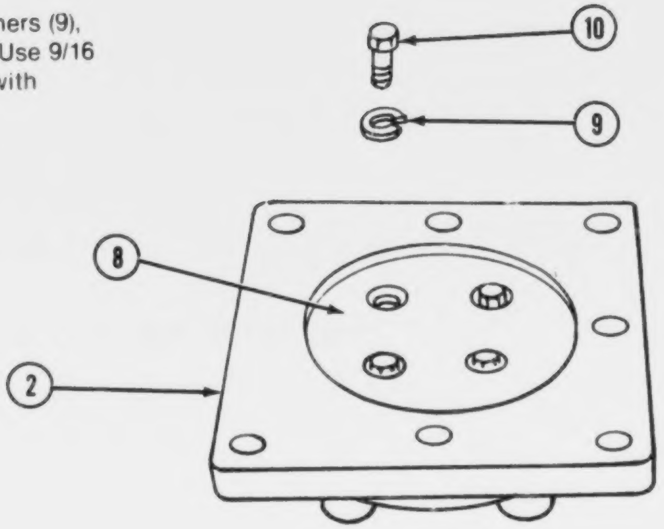
Shims are color coded for thickness size. See list below for color and thickness:

Red	0.002 in. (0.051 mm)
Tan	0.004 in. (0.102 mm)
Transmatte	0.0075 in. (0.191 mm)
Brown	0.010 in. (0.254 mm)

1. INSTALL UPPER BASE ON LOWER BASE.
   - Apply grease to mating surfaces of lower base (1) and upper base (2).
   - Apply light coat of grease to new preformed packing (3).
   - Install preformed packing (3) on upper base (2).
   - Install upper base (2) on lower base (1). Use soft faced hammer.
   - Install one new red shim (4), two new tan shims (5), four new transmatte shims (6), and two new brown shims (7) in lower base (1).



2. INSTALL PLATE IN UPPER BASE.
   - Install plate (8), four new lock washers (9), and screws (10) on upper base (2). Use 9/16 inch socket and 2 inch extension with ratchet handle.
   - Wipe off excess grease. Use rag.



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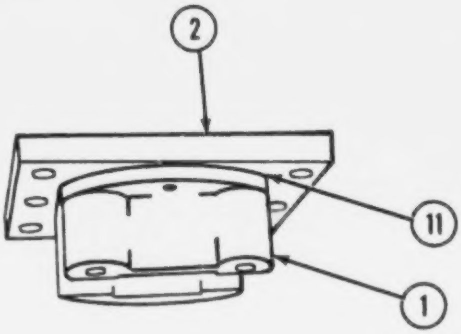
3. ADJUST BASE CLEARANCE.
   - Measure gap between upper base (2) and lower base (1). Use micrometer. Gap should be 0.010 — 0.015 in. (0.025 — 0.038 mm).
   - If gap is correct, go to step 4.
   - If gap is not correct, disassemble swivel assembly base. (See Swivel Assembly Base, Page 17-23.)
   - Remove shims (11) as required to correct gap between upper base (2) and lower base (1).
   - Install plate in upper base. (See previous step.)



4. INSTALL SWIVEL ASSEMBLY CAP AND BASE ON DISPENSER. (SEE TM 9-1095-205-20.)

NOTE

FOLLOW-ON MAINTENANCE:

Install Vehicle Leveling Support Jack Assembly. (See TM 9-1095-205-20.)
Lubricate Swivel Assembly. (See LO 9-1095-205-12.)

END OF TASK

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CHAPTER 18

MAGAZINE ASSEMBLIES (GENERAL SUPPORT)

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

18-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

18-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are authorized for the M128 Ground Vehicle Mine Dispenser.

18-3 REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list TM 9-1095-205-34P, covering direct support and general support maintenance for this equipment.

Section II. MAINTENANCE PROCEDURES

18-4 LEFT INFEED CONVEYOR ASSEMBLY

DESCRIPTION

This task covers:
A. DISASSEMBLY (p 18-6)
B. REASSEMBLY (p 18-21)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit 5180-00-177-7033:
  - 1/4 inch flat tip screwdriver
  - 5/32 inch hex key
  - 7/16 inch socket
  - 3/4 inch socket (2)
  - 15/16 inch socket
  - 1 1/8 inch socket
  - 5/8 inch socket
  - Ball peen hammer
  - Ratchet handle (2)
  - 6 inch steel rule
  - 1 inch box end wrench
  - 3/4 inch open end wrench
  - Slip joint pliers
  - Diagonal cutting pliers
  - 6 inch adjustable wrench
  - Pry bar
- Goggles 4240-00-269-7912
- Arbor press 3444-00-449-7295
- 5/16 inch hex key 5120-00-240-5274
- 1 3/4 inch to 2 inch ring size retaining ring pliers 5120-00-293-0045
- 1/16 inch diameter drive pin punch 5120-00-240-6082
- 3 to 3 1/2 inch ring size retaining ring pliers 5120-00-293-0046
- Mechanical puller 5120-00-595-9305
- Soft faced hammer 5120-00-903-8553
- Shouldered shaft outer radial bearing installation tool, SK 2435, Appendix C
- Shouldered shaft inner radial bearing installation tool, SK 2436, Appendix C
- Inner and outer modified idler sprocket radial bearing installation tool SK 2437, Appendix C
- Idler sprocket radial bearing installation tool SK 2438, Appendix C

Tools and Special Tools — Continued:
- Shouldered shaft installation tool SK 2439, Appendix C
- Upright drilling machine 3413-00-165-4136
- 25/32 inch twist drill 5133-00-228-1337
- 17/32 inch twist drill 5133-00-189-9324
- 11/32 inch twist drill 5133-00-227-9664
- 9/16 to 3/4 inch screw extractor 5120-00-240-5219
- 7/16 to 9/16 inch screw extractor 5120-00-240-5222
- 1/4 to 5/16 inch screw extractor 5120-00-580-2359

Materials/Parts:
- Safety wire, Item 24, Appendix B
- Self-locking screw (2) (96906) MS 18153-137L
- Self-locking screw 5305-01-070-7096
- Self-locking screw 5306-01-078-5065
- Self-locking screw 5306-01-162-5706
- Self-locking screw 5306-01-163-2428
- Self-locking screw (4) (96906) MS 18154-87L
- Self-locking screw (96906) MS 18154-110L
- Self-locking screw (6) (96906) MS 18154-6L
- Self-locking screw (6) 5305-00-469-3939
- Self-locking screw (4) (96906) MS 24667-29L
- Self-locking nut (6) 5310-00-225-6993
- Threaded insert (2) 5340-00-451-8983
- Threaded insert (6) (96906) MS 51831-105
- Threaded insert (2) 5340-01-076-5512
- Grease, Item 11, Appendix B
- Lubricating oil (see LO 9-1095-205-12), Item 18, Appendix B

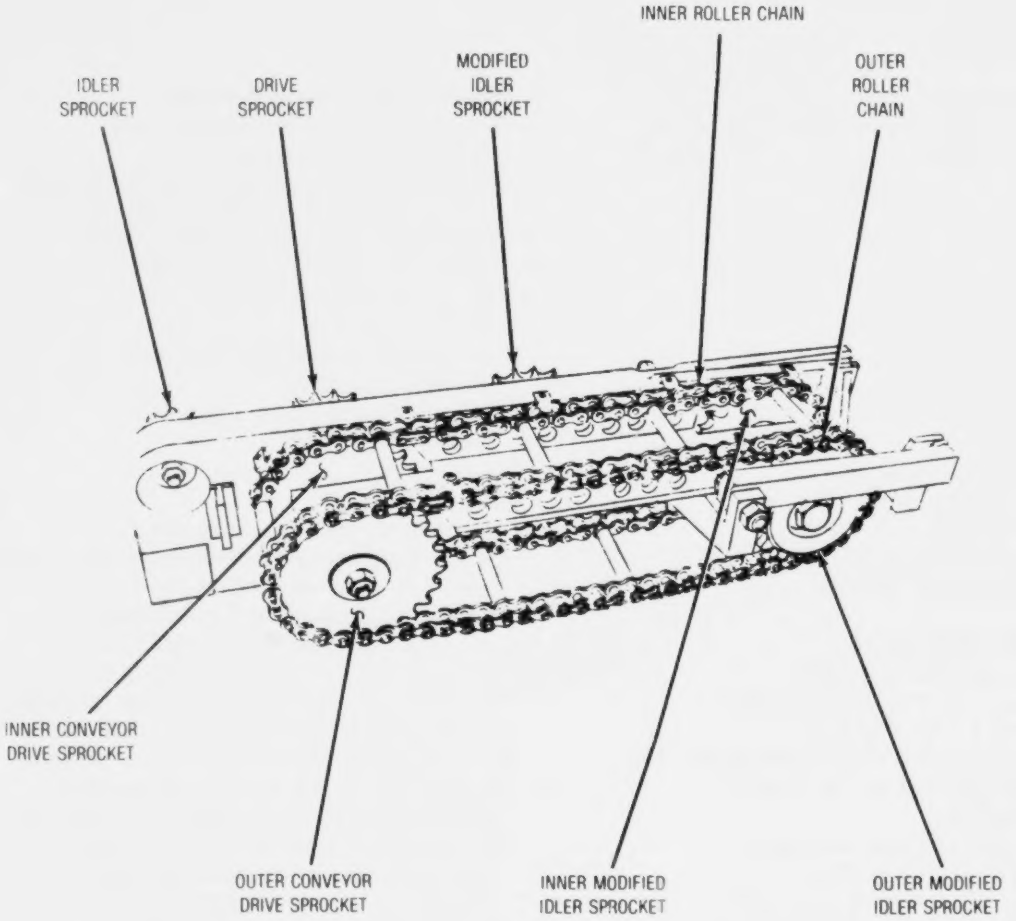
References:
- LO 9-1095-205-12
- LEFT INFEED CONVEYOR PROXIMITY SENSORS, Page 6-37
- LEFT MAGAZINE CONTROL WIRING INSTALLATION, Page 20-3

GO TO NEXT PAGE

18-4 LEFT INFEED CONVEYOR ASSEMBLY — Continued

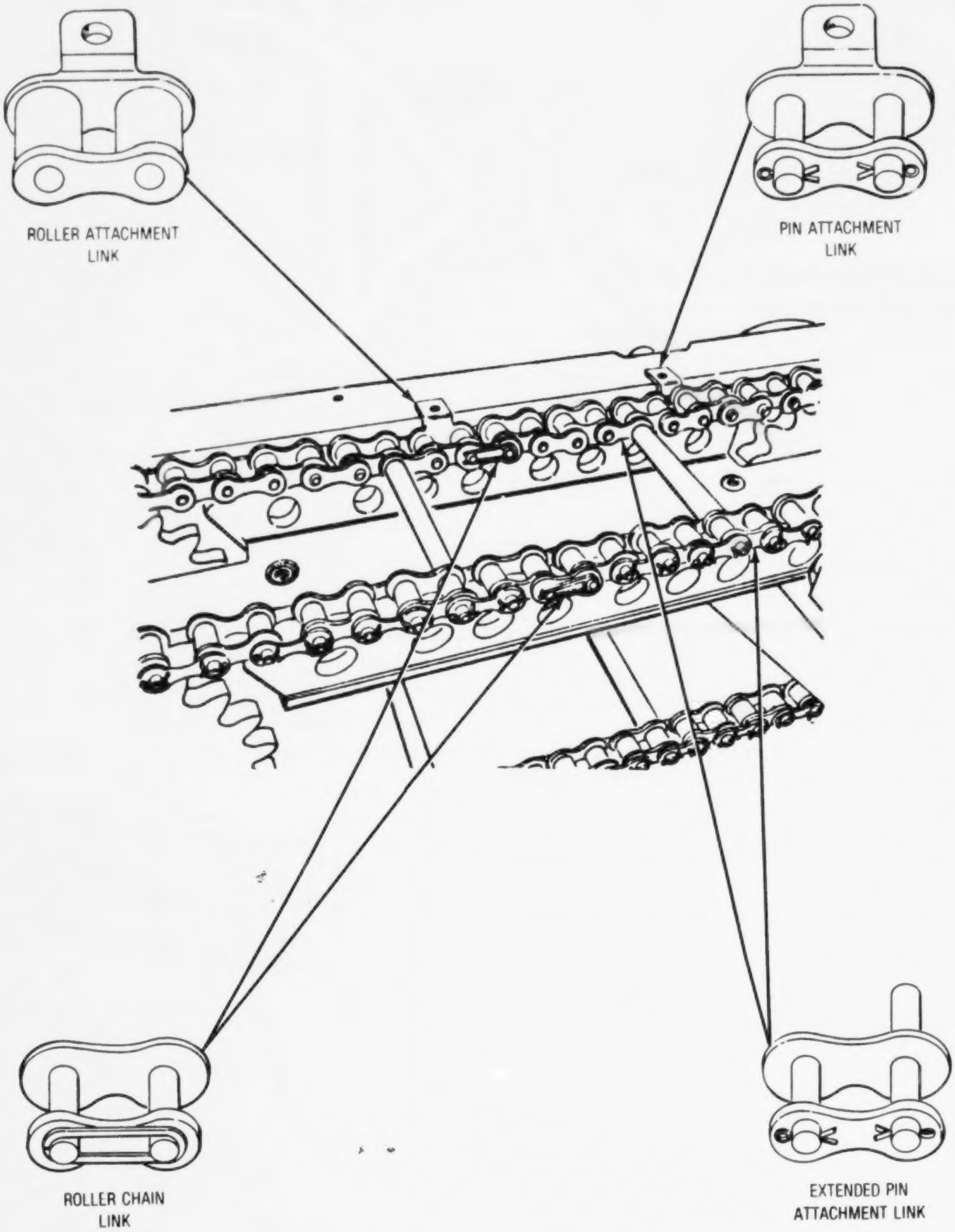
OVERVIEW

The left infeed conveyor assembly has seven sprockets and two roller chains. Use the following locator to help you find these sprockets and roller chains during disassembly and reassembly. Roller chains are a matched set. If one chain is to be replaced, both must be replaced.


INNER ROLLER CHAIN
IDLER SPROCKET
DRIVE SPROCKET
MODIFIED IDLER SPROCKET
OUTER ROLLER CHAIN
INNER CONVEYOR DRIVE SPROCKET
OUTER CONVEYOR DRIVE SPROCKET
INNER MODIFIED IDLER SPROCKET
OUTER MODIFIED IDLER SPROCKET

Locator for Left Infeed Conveyor Assembly Sprockets and Roller Chains

The two roller chains (outer and inner) on the left infeed conveyor assembly have special links. Use the following locator to help you find these special links.


ROLLER ATTACHMENT LINK
PIN ATTACHMENT LINK
ROLLER CHAIN LINK
EXTENDED PIN ATTACHMENT LINK

Locator for Special Links on Roller Chains

GO TO NEXT PAGE

18-4 LEFT INFEED CONVEYOR ASSEMBLY — Continued

A. DISASSEMBLY

WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

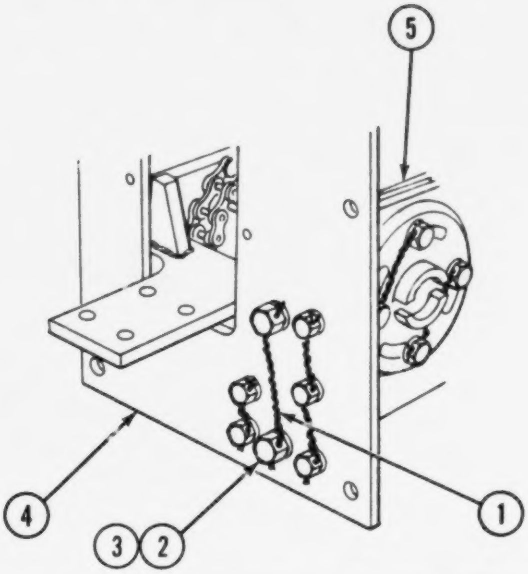
NOTE

PRELIMINARY PROCEDURES:

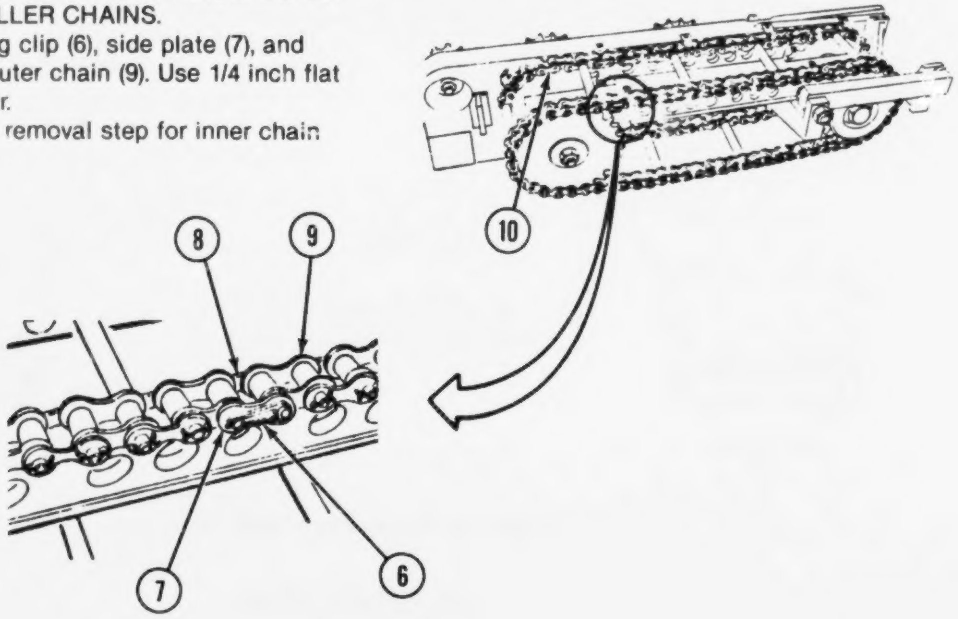
Remove Left Magazine Internal Wiring Harness. (See Left Magazine Control Wiring Installation, Page 20-3.)

Remove Left Infeed Conveyor Proximity Sensor. (See Left Infeed Conveyor Proximity Sensors, Page 6-37.)

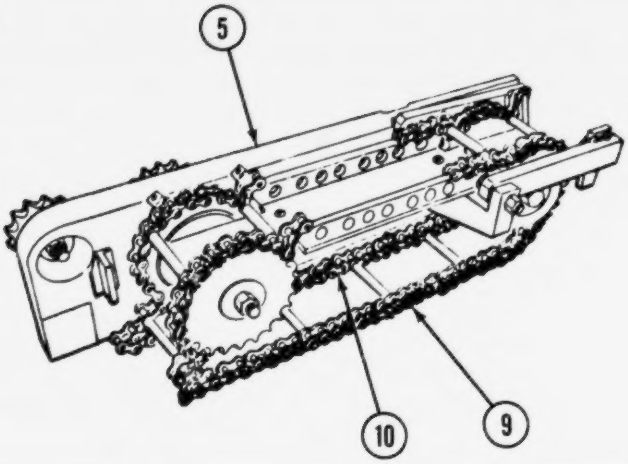
1. REMOVE LEFT END COVER ASSEMBLY FROM LEFT INFEED CONVEYOR ASSEMBLY.
   - Remove safety wire (1) from two self-locking screws (2). Use diagonal cutting pliers. Discard safety wire.
   - Remove two self-locking screws (2), washers (3), and cover assembly (4) from conveyor assembly (5). Use 15/16 inch socket with ratchet handle. Discard self-locking screws.



2. REMOVE ROLLER CHAIN LINK FROM OUTER AND INNER ROLLER CHAINS.
   - Remove spring clip (6), side plate (7), and link (8) from outer chain (9). Use 1/4 inch flat tip screwdriver.
   - Repeat above removal step for inner chain (10).



3. REMOVE OUTER CHAIN (9) AND INNER CHAIN (10) FROM CONVEYOR ASSEMBLY (5).



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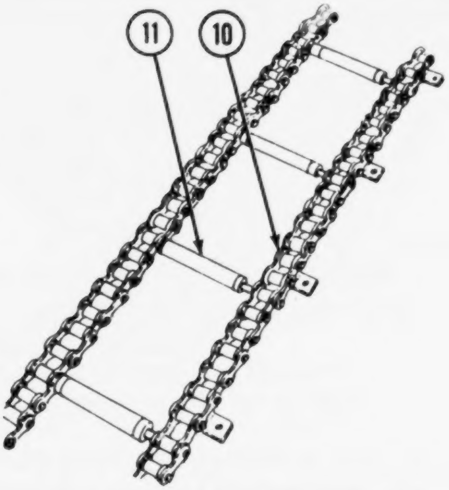
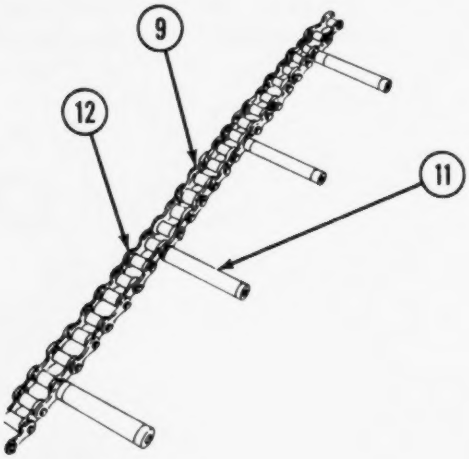
4. SEPARATE OUTER AND INNER ROLLER CHAINS.
   - Separate inner chain (10) from 10 tubular flight bars (11).



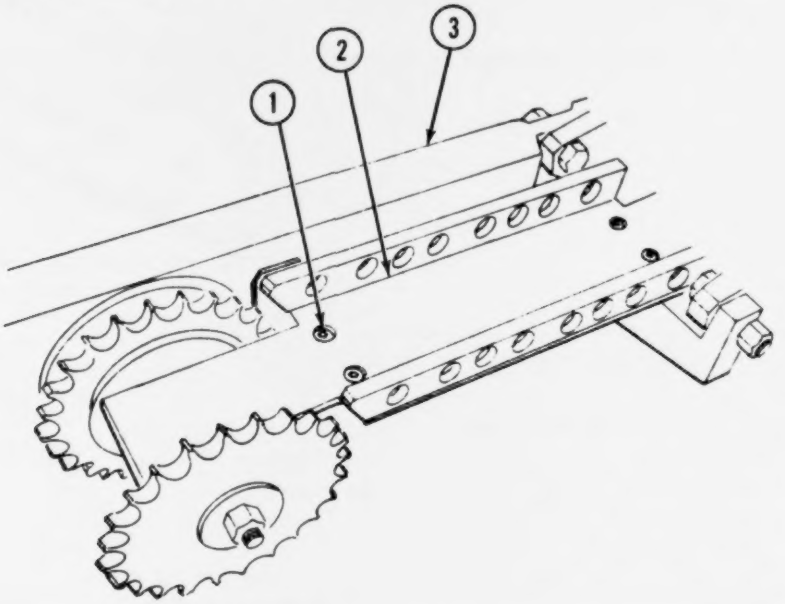
- Remove 10 tubular flight bars (11) from 10 extended pin attachment links (12) on outer chain (9).



GO TO NEXT PAGE

A. DISASSEMBLY — Continued

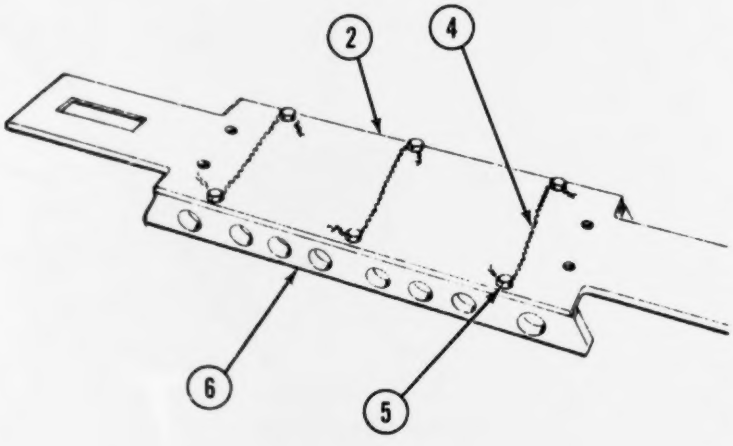
5. REMOVE MINE GUIDE FROM LEFT INFEED CONVEYOR ASSEMBLY.
   - Remove four self-locking screws (1) and mine guide (2) from conveyor assembly (3). Use 5/32 inch hex key. Discard self-locking screws.



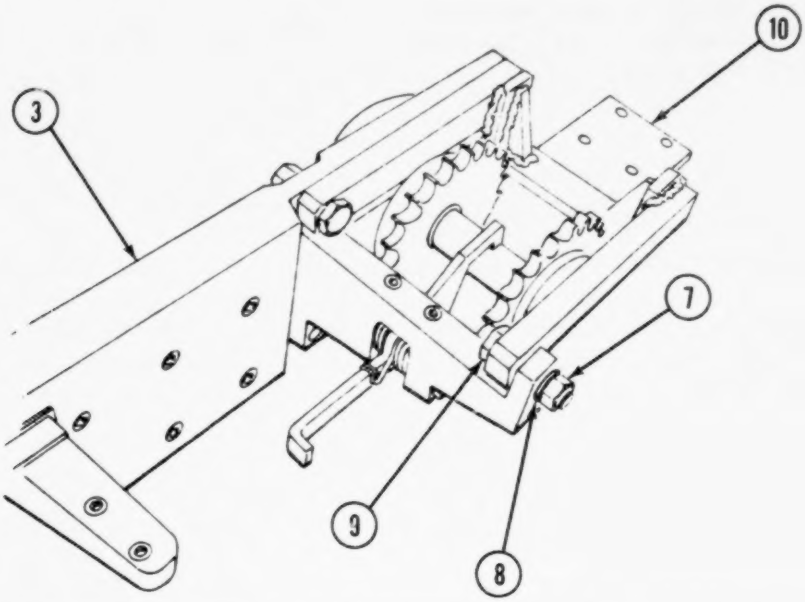
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

6. REMOVE TWO CHAIN GUIDES FROM MINE GUIDE.
   - Remove safety wire (4) from six self-locking screws (5). Use diagonal cutting pliers. Discard safety wire.
   - Remove six self-locking screws (5) and two chain guides (6) from mine guide (2). Use 7/16 inch socket with ratchet handle. Discard self-locking screws.



7. REMOVE INFEED CHUTE PIVOT FRAME FROM LEFT INFEED CONVEYOR ASSEMBLY.
   - Remove two self-locking nuts (7), washers (8), screws (9), and pivot frame (10) from conveyor assembly (3). Use 1 inch box end wrench and 3/4 inch socket with ratchet handle. Discard self-locking nuts.



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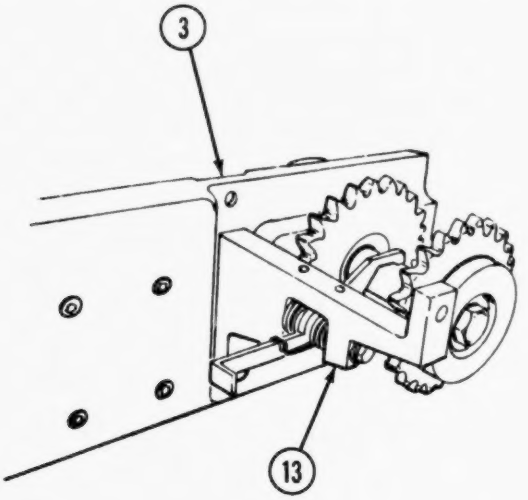
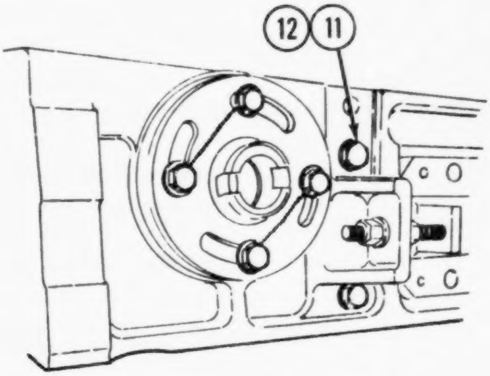
8. REMOVE INPUT SENSOR LEVER ASSEMBLY FROM LEFT INFEED CONVEYOR ASSEMBLY.
   - Remove two self-locking screws (11), washers (12), and lever assembly (13) from conveyor assembly (3). Use 3/4 inch socket with ratchet handle. Discard self-locking screws.





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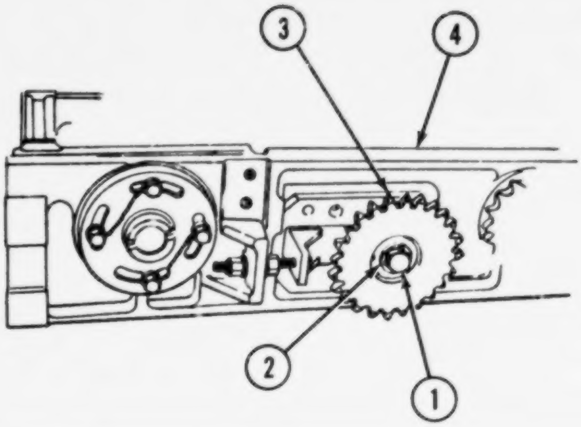
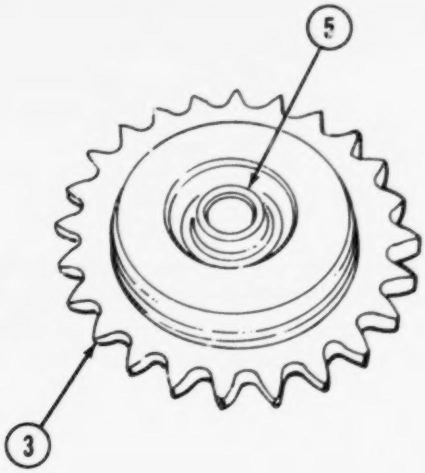
A. DISASSEMBLY — Continued

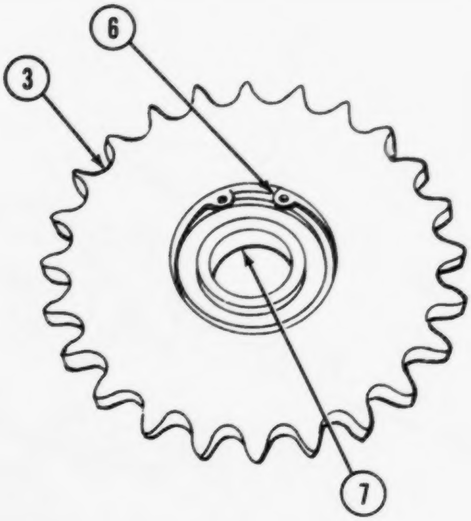
9. REMOVE MODIFIED IDLER SPROCKET FROM LEFT INFEED CONVEYOR ASSEMBLY.
   - Remove self-locking screw (1), washer (2), and sprocket (3) from conveyor assembly (4). Use 1 1/8 inch socket with ratchet handle. Discard self-locking screw.



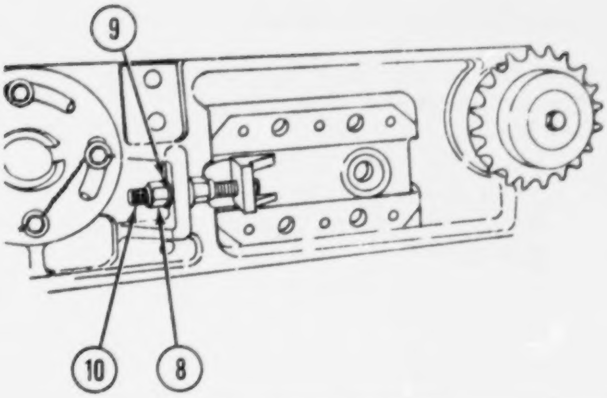
10. REMOVE SHOULDERED SHAFT FROM MODIFIED IDLER SPROCKET.
    - Remove shaft (5) from sprocket (3). Use arbor press.



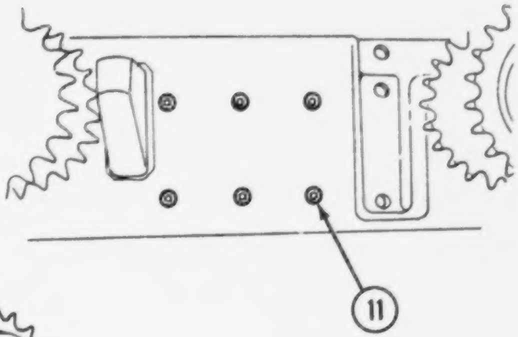
11. REMOVE RADIAL BEARING FROM MODIFIED IDLER SPROCKET.
    - Remove retaining ring (6) from sprocket (3). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (7) from sprocket (3). Use arbor press.

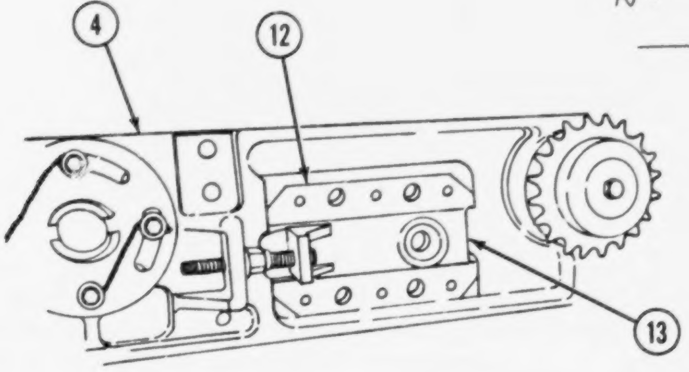


12. REMOVE TAKE-UP CARRIER FROM LEFT INFEED CONVEYOR ASSEMBLY.
    - Remove self-locking nut (8) and washer (9) from take-up carrier stud (10). Use 3/4 inch open end wrench. Discard self-locking nut.

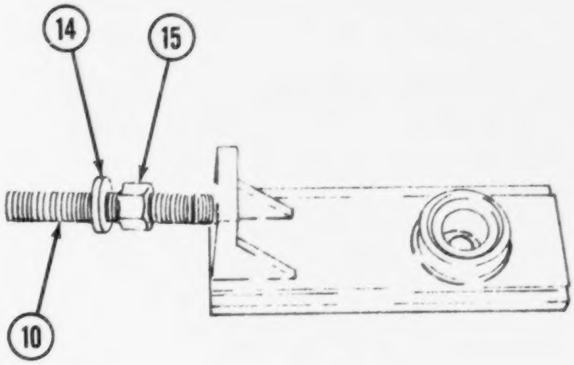


- Remove six self-locking screws (11), two take-up carrier guide rails (12), and take-up carrier (13) from conveyor assembly (4). Use 5/16 inch hex key. Discard self-locking screws.





- Pemove washer (14) and self-locking nut (15) from take-up carrier stud (10). Use 3/4 inch open end wrench. Discard self-locking nut.



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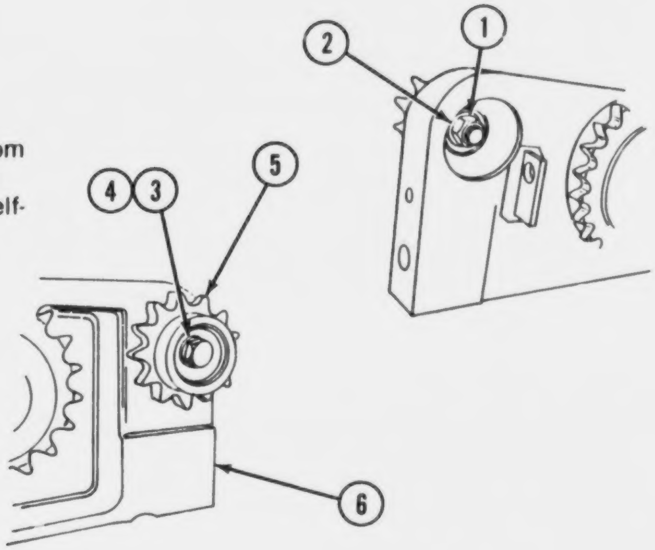
A. DISASSEMBLY — Continued

13. REMOVE IDLER SPROCKET FROM LEFT INFEED CONVEYOR ASSEMBLY.
    - Remove self-locking nut (1), washer (2), screw (3), washer (4), and sprocket (5) from conveyor assembly (6). Use two 3/4 inch sockets with ratchet handles. Discard self-locking nut.



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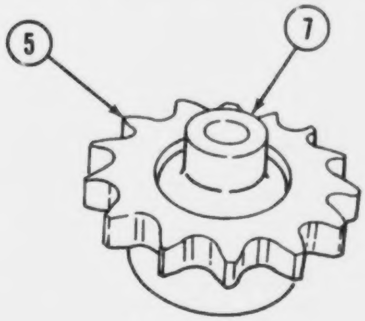
14. REMOVE SHOULDERED SHAFT FROM IDLER SPROCKET.
    - Remove shaft (7) from sprocket (5). Use arbor press.



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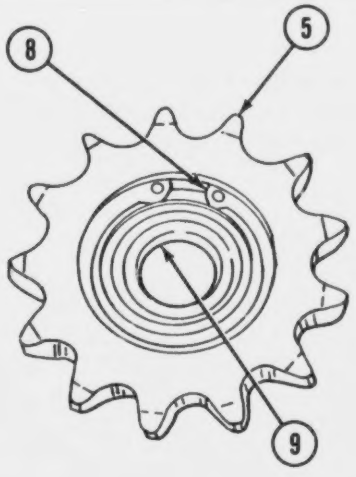
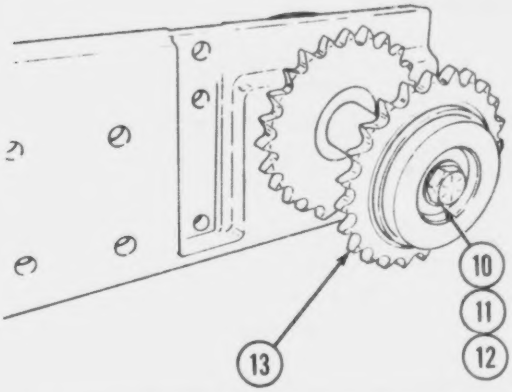
15. REMOVE RADIAL BEARING FROM IDLER SPROCKET.
    - Remove retaining ring (8) from sprocket (5). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (9) from sprocket (5). Use arbor press.



16. REMOVE OUTER MODIFIED IDLER SPROCKET FROM CONVEYOR IDLER SHAFT.
    - Remove self-locking screw (10) and washer (11) from shaft (12). Use 1 1/8 inch socket with ratchet handle. Discard self-locking screw.
    - Remove sprocket (13) from shaft (12). Use soft faced hammer.



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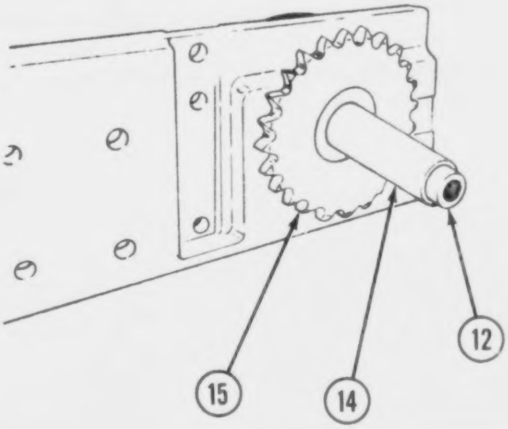
17. REMOVE INNER MODIFIED IDLER SPROCKET FROM CONVEYOR IDLER SHAFT.
    - Remove sleeve spacer (14) from shaft (12).
    - Remove sprocket (15) from shaft (12). Use soft faced hammer.



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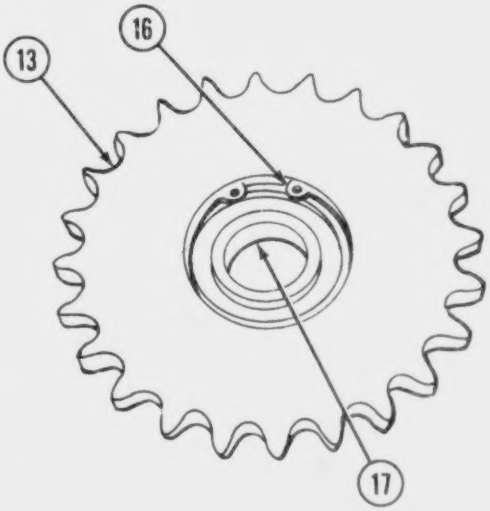
18. REMOVE RADIAL BEARING FROM OUTER AND INNER MODIFIED IDLER SPROCKETS.
    - Remove retaining ring (16) from sprocket (13). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (17) from sprocket (13). Use arbor press.
    - Repeat above removal steps for other bearing.



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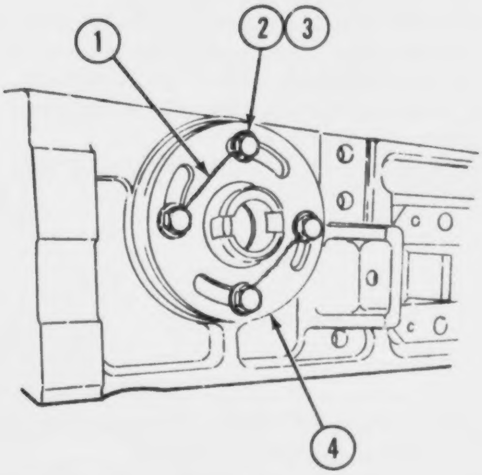
A. DISASSEMBLY — Continued

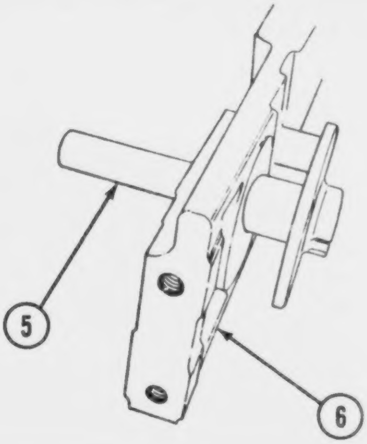
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

19. REMOVE CONVEYOR IDLER SHAFT FROM LEFT INFEED CONVEYOR ASSEMBLY.
    - Remove safety wire (1) from four self-locking screws (2). Use diagonal cutting pliers. Discard safety wire.
    - Remove four self-locking screws (2) and washers (3) from conveyor idler shaft adjusting plate (4). Use 5/8 inch socket with ratchet handle. Discard self-locking screws.



- Remove shaft (5) from conveyor assembly (6). Use soft faced hammer.



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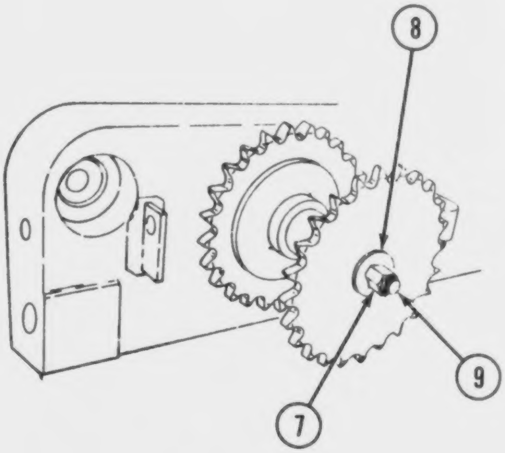
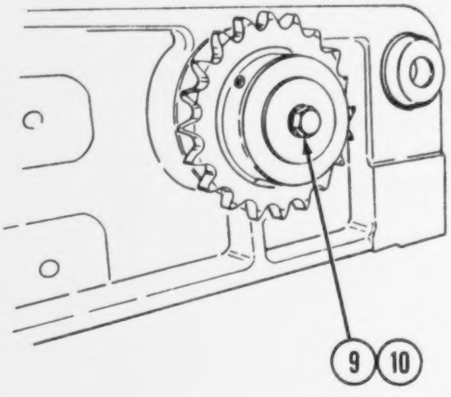
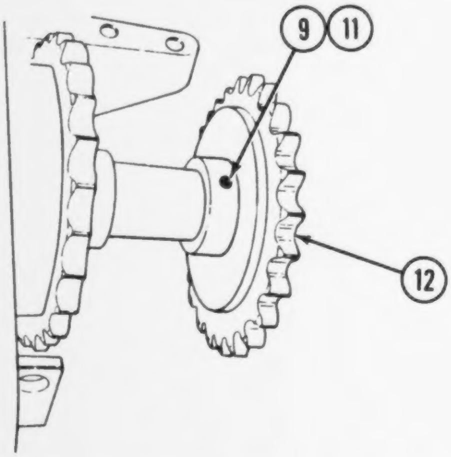
20. REMOVE OUTER CONVEYOR DRIVE SPROCKET FROM SHOULDERED SHAFT.
    - Remove self-locking nut (7) and washer (8) from shaft (9). Use 3/4 inch socket with ratchet handle. Discard self-locking nut.



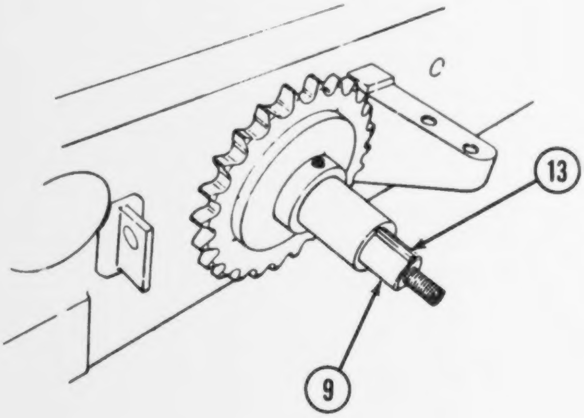
- Loosen self-locking screw (10) on shaft (9). Use 3/4 inch socket with ratchet handle.



- Remove setscrew (11) from sprocket (12). Use 5/32 inch hex key.
- Remove sprocket (12) from shaft (9). Use mechanical puller.



- Remove key (13) from shaft (9). Use slip joint pliers.



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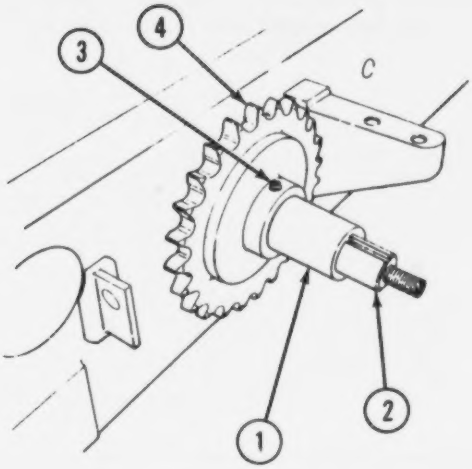
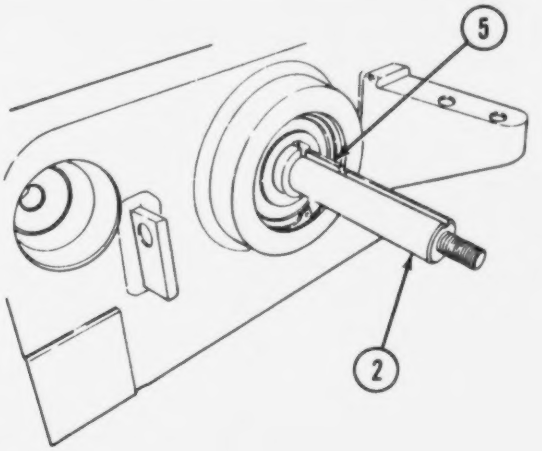
A. DISASSEMBLY — Continued

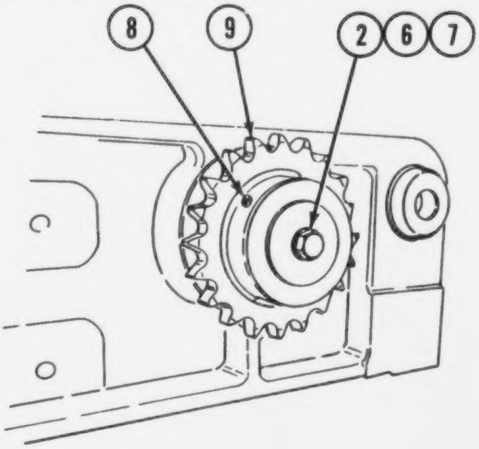
21. REMOVE INNER CONVEYOR DRIVE SPROCKET FROM SHOULDERED SHAFT.
    - Remove drive spacer (1) from shaft (2).
    - Remove setscrew (3) from sprocket (4). Use 5/32 inch hex key.
    - Remove sprocket (4) from shaft (2). Use mechanical puller.



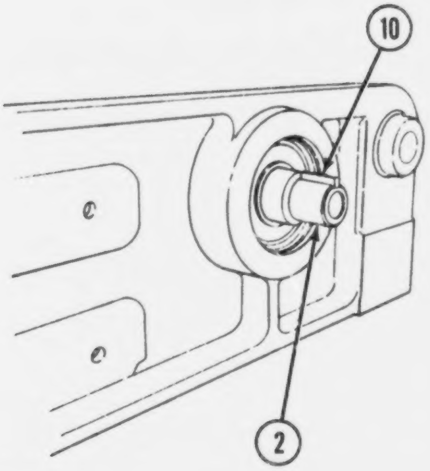
- Remove key (5) from shaft (2). Use slip joint pliers.



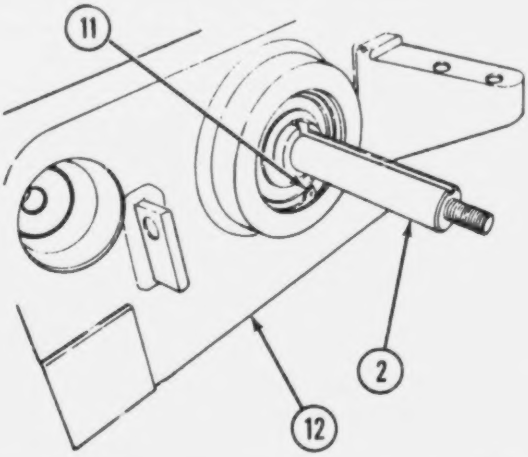
22. REMOVE DRIVE SPROCKET FROM SHOULDERED SHAFT.
    - Remove self-locking screw (6) and washer (7) from shaft (2). Use 3/4 inch socket with ratchet handle. Discard self-locking screw.
    - Remove setscrew (8) from sprocket (9). Use 5/32 inch hex key.
    - Remove sprocket (9) from shaft (2). Use mechanical puller.



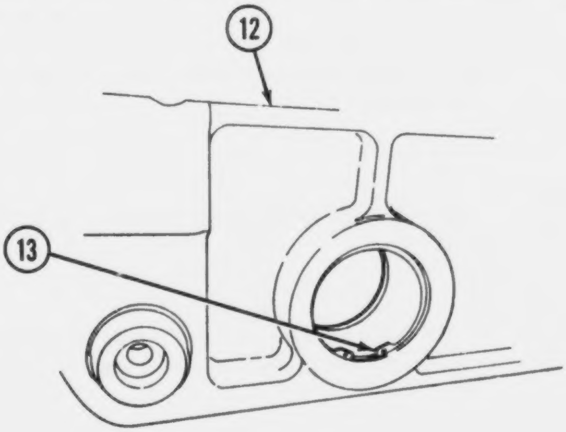
- Remove key (10) from shaft (2). Use slip joint pliers.



23. REMOVE SHOULDERED SHAFT WITH TWO RADIAL BEARINGS FROM LEFT INFEED CONVEYOR ASSEMBLY.
    - Remove retaining ring (11) from conveyor assembly (12). Use 3 to 3 1/2 inch ring size retaining ring pliers.
    - Remove shaft (2) from conveyor assembly (12). Use arbor press.



- Remove other retaining ring (13) from conveyor assembly (12). Use 3 to 3 1/2 inch ring size retaining ring pliers.



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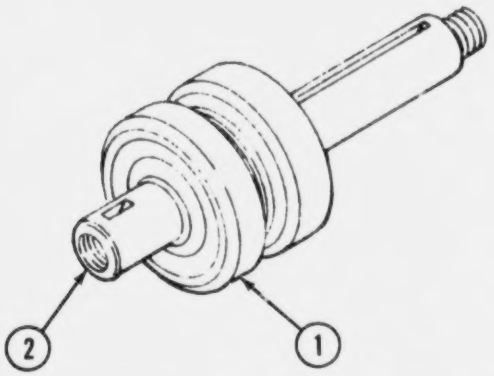
A. DISASSEMBLY — Continued

24. REMOVE INNER RADIAL BEARING FROM SHOULDERED SHAFT.
    - Remove bearing (1) from shaft (2). Use mechanical puller.



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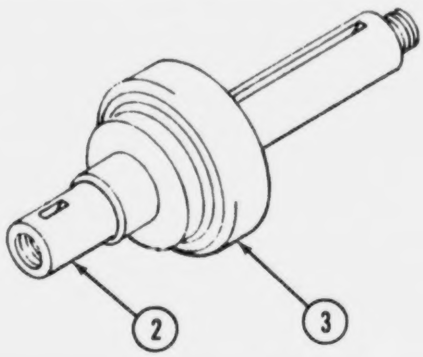
25. REMOVE OUTER RADIAL BEARING FROM SHOULDERED SHAFT.
    - Remove bearing (3) from shaft (2). Use mechanical puller.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

CAUTION

Infeed conveyor frame assembly is made of aluminum and can be easily damaged. Secure infeed conveyor frame assembly when drilling out old threaded inserts.

NOTE

Do not remove threaded inserts unless they are damaged.

• • • •

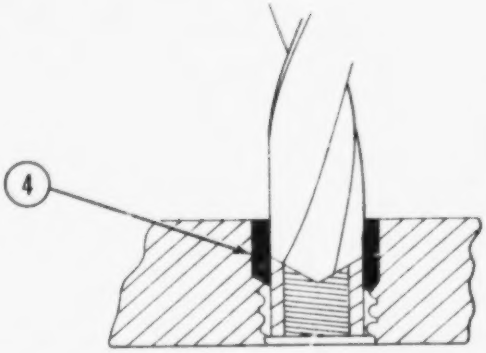
Left infeed conveyor frame assembly has 12 threaded inserts. They are removed the same way. Step 26 shows typical threaded insert.

• • • •

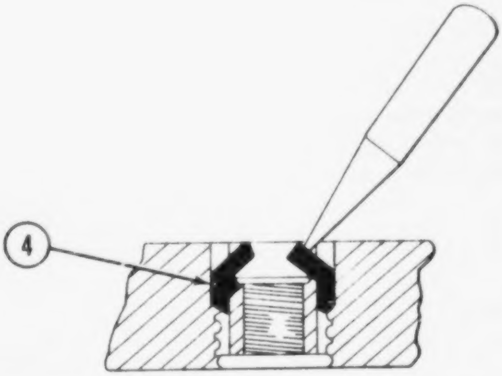
The Threaded Insert Removal Chart on Page 18-20 shows the locations of threaded inserts. It also shows sizes of twist drills and screw extractors required for threaded insert removal.

26. REMOVE THREADED INSERT FROM FRAME ASSEMBLY.

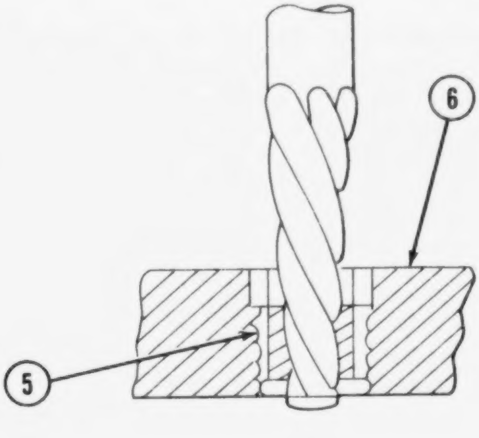
- Drill out material between four insert keys (4) to 3/16 in. (4.8 mm) depth. Use twist drill with upright drilling machine. (See Threaded Insert Removal Chart, Page 18-20.)



- Bend four insert keys (4) inward, and break four insert keys off. Use 1/16 inch diameter drive pin punch and soft faced hammer.



- Remove insert (5) from frame assembly (6). Use screw extractor and 6 inch adjustable wrench. (See Threaded Insert Removal Chart, Page 18-20.) Discard insert.



GO TO NEXT PAGE

A. DISASSEMBLY — Continued

THREADED INSERT REMOVAL CHART

END VIEW

Drill size:

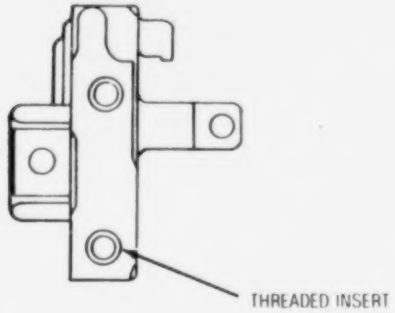
25/32 in. (19.8 mm)

Screw extractor size:

9/16 — 3/4 in. (14.3 — 19.1 mm)

Numbers of inserts:

2


THREADED INSERT

SIDE VIEW

Drill size:

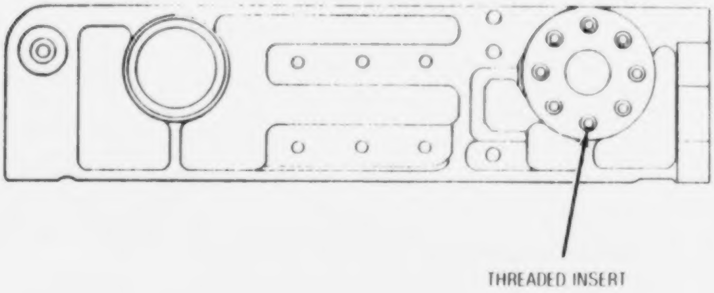
17/32 in. (13.5 mm)

Screw extractor size:

7/16 — 9/16 in. (11.1 — 14.3 mm)

Number of inserts:

8


THREADED INSERT

TOP VIEW

Drill size:

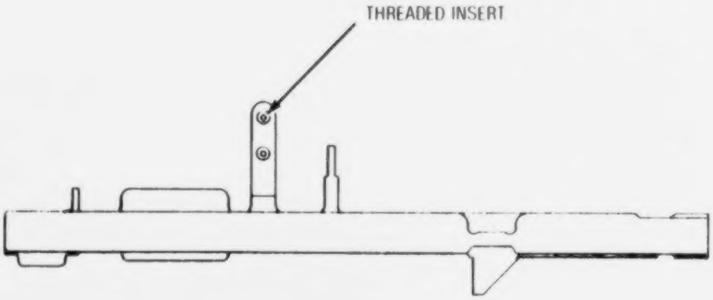
11/32 in. (8.7 mm)

Screw extractor size:

1/4 — 5/16 in. (6.4 — 7.9 mm)

Number of inserts:

2


THREADED INSERT

B. REASSEMBLY

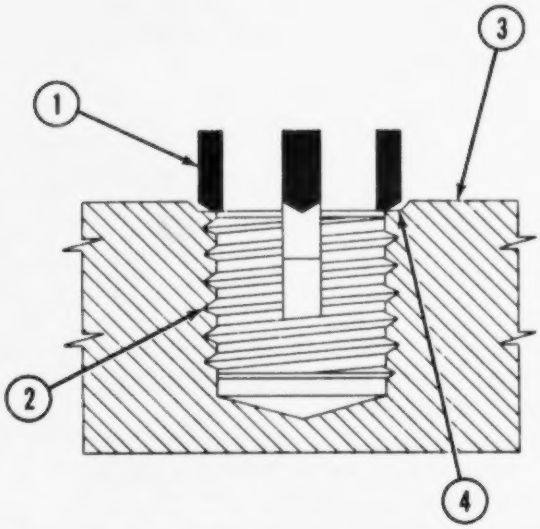
NOTE

Left infeed conveyor frame assembly has 12 threaded inserts. They are installed the same way. Step 1 shows typical threaded insert. If threaded inserts were not removed, go to step 2.

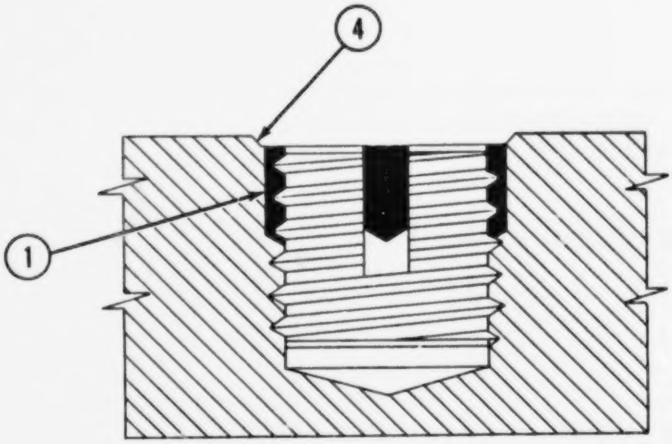
• • • •

Threaded Insert Removal Chart, Page 18-20, shows location of threaded inserts.

1. INSTALL NEW THREADED INSERT IN LEFT FRAME ASSEMBLY.
   - Hold four insert keys (1), and turn new insert (2) in frame assembly (3) until top of insert is below bottom of countersink (4). (See Threaded Insert Removal Chart, Page 18-20.)



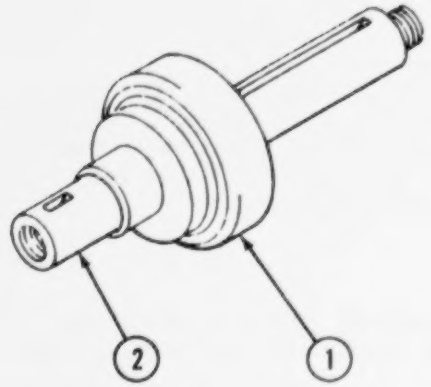
   - Tap four insert keys (1) down until tops of four insert keys (1) are below countersink (4). Use 1/16 inch diameter drive pin punch and ball peen hammer.



GO TO NEXT PAGE

B. REASSEMBLY — Continued

2. INSTALL OUTER RADIAL BEARING ON SHOULDERED SHAFT.
   - Install bearing (1) on shaft (2). Use arbor press and shouldered shaft outer radial bearing installation tool.



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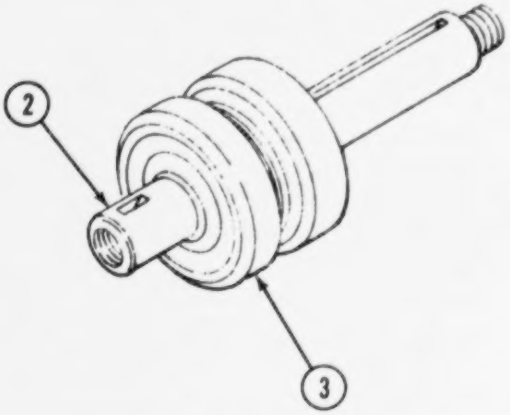
3. INSTALL INNER RADIAL BEARING ON SHOULDERED SHAFT.
   - Install bearing (3) on shaft (2). Use arbor press and shouldered shaft inner radial bearing installation tool.



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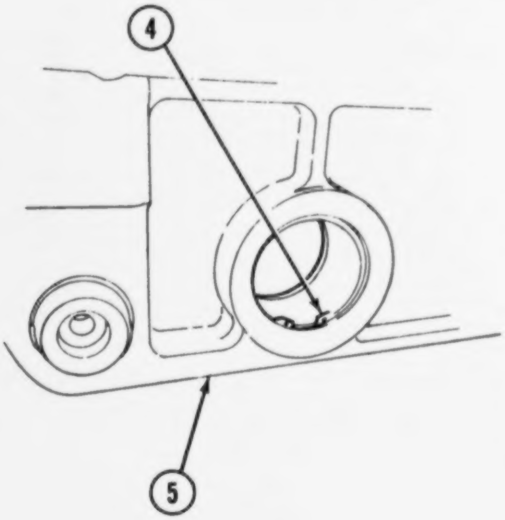
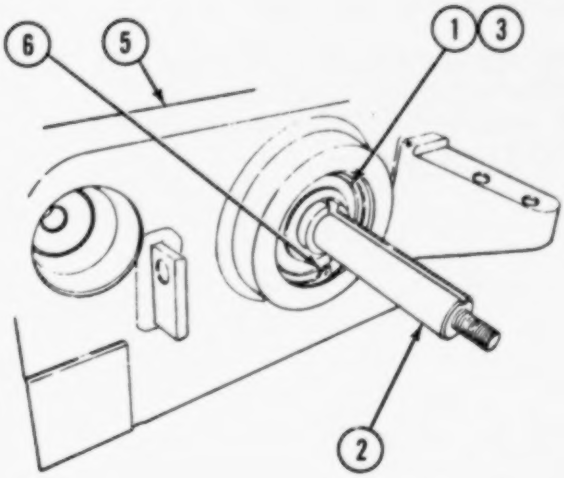
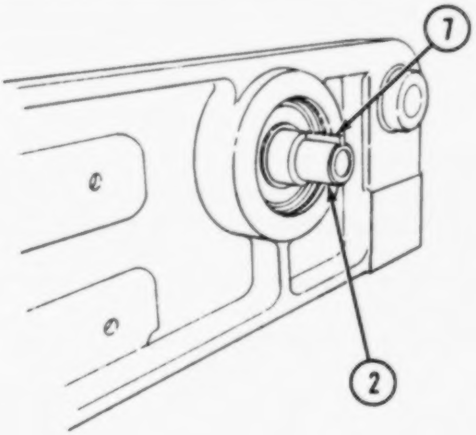
4. INSTALL SHOULDERED SHAFT WITH TWO RADIAL BEARINGS ON LEFT INFEED CONVEYOR ASSEMBLY.
   - Install retaining ring (4) on conveyor assembly (5). Use 3 to 3 1/2 inch ring size retaining ring pliers.

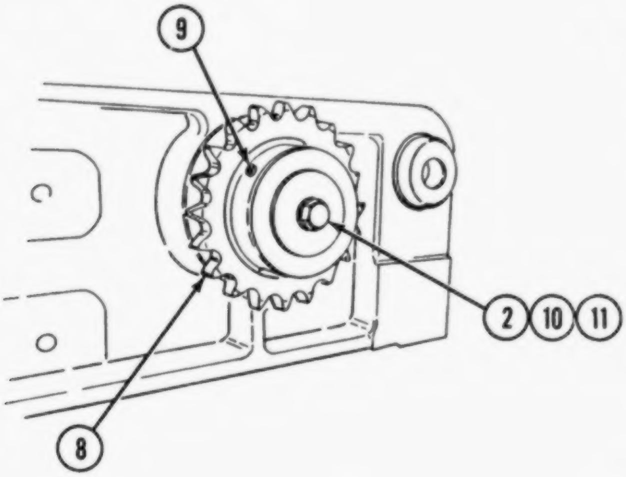


- Install shaft (2) with bearing (3) and bearing (1) in conveyor assembly (5). Use arbor press and shouldered shaft inner radial bearing installation tool.
- Install retaining ring (6) on conveyor assembly (5). Use 3 to 3 1/2 inch ring size retaining ring pliers.



5. INSTALL DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (7) in keyway of shaft (2). Use soft faced hammer.
   - Apply light coat of grease to inside of sprocket (8) and outside of shaft (2).
   - Install and seat sprocket (8) against shoulder of shaft (2). Use soft faced hammer.
   - Install setscrew (9) on sprocket (8). Use 5/32 inch hex key.
   - Install washer (10) and new self-locking screw (11) on shaft (2). Use 3/4 inch socket with ratchet handle. Do not tighten.





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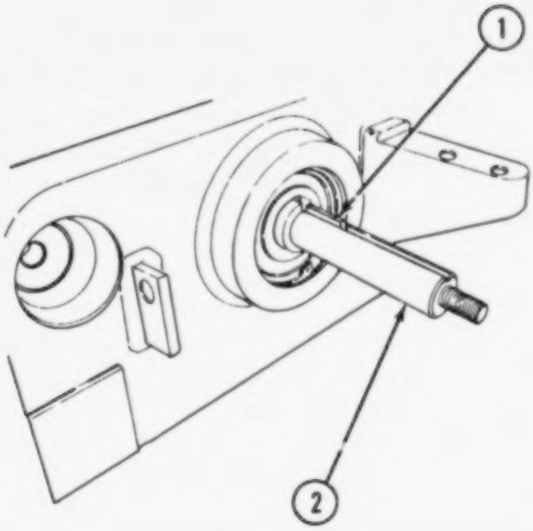
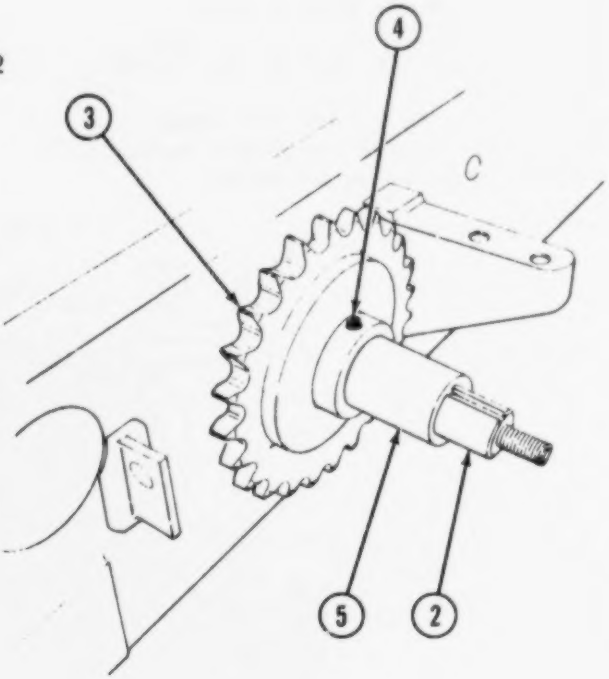
B. REASSEMBLY — Continued

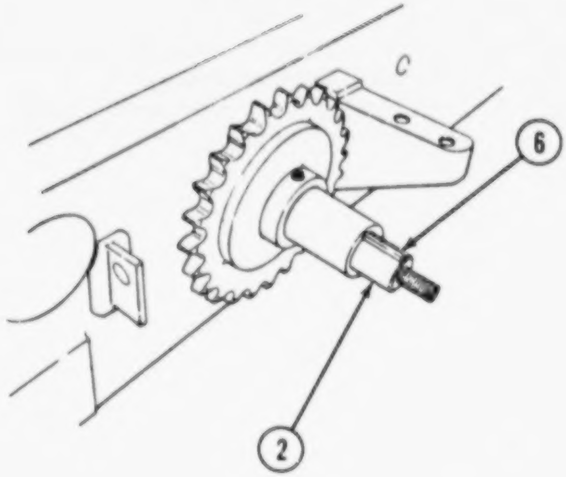
6. INSTALL INNER CONVEYOR DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (1) in keyway of shaft (2). Use soft faced hammer.

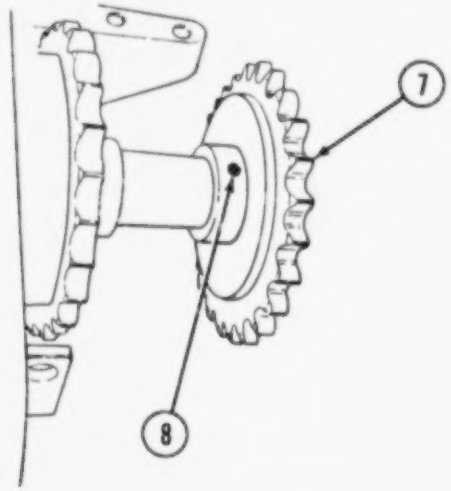


- Install and seat sprocket (3) against shoulder of shaft (2). Use soft faced hammer.
- Install setscrew (4) on sprocket (3). Use 5/32 inch hex key.
- Install drive spacer (5) on shaft (2).

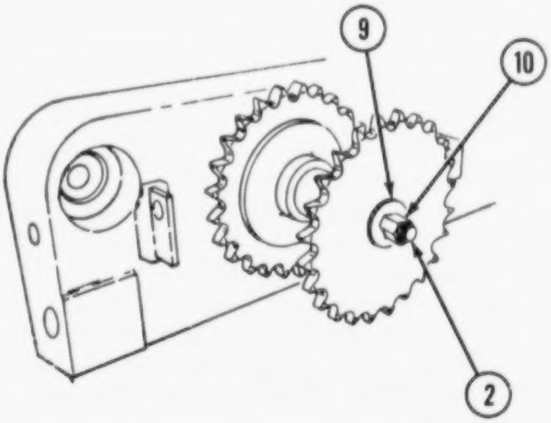


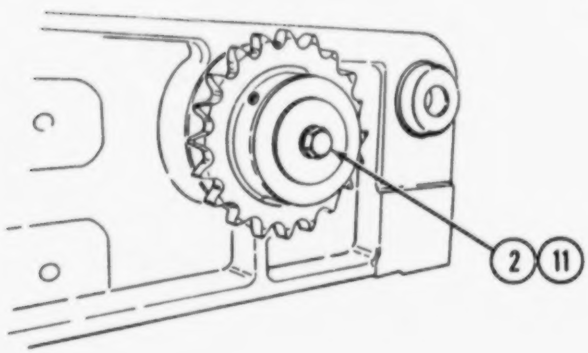
7. INSTALL OUTER CONVEYOR DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (6) in keyway of shaft (2). Use soft faced hammer.
   - Install sprocket (7) on shaft (2). Use soft faced hammer.
   - Install setscrew (8) on sprocket (7). Use 5/32 inch hex key.





- Install washer (9) and new self-locking nut (10) on shaft (2). Use 3/4 inch socket with ratchet handle.
- Tighten self-locking screw (11) on shaft (2). Use 3/4 inch socket with ratchet handle.





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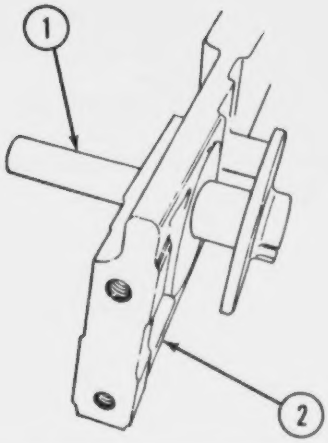
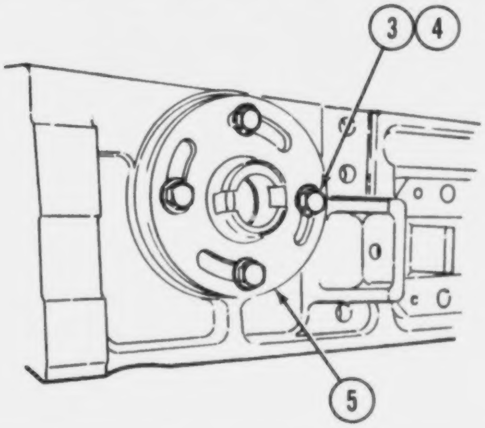
B. REASSEMBLY — Continued

8. INSTALL CONVEYOR IDLER SHAFT IN LEFT INFEED CONVEYOR ASSEMBLY.
   - Install shaft (1) in conveyor assembly (2). Use soft faced hammer.



   - Install four washers (3) and new self-locking screws (4) on conveyor idler shaft adjusting plate (5). Use 5/8 inch socket with ratchet handle. Do not tighten.



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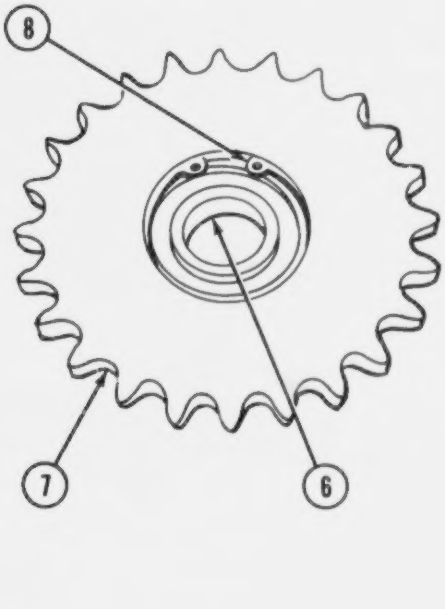
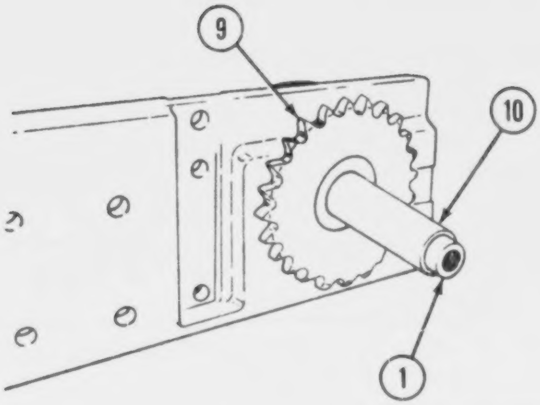
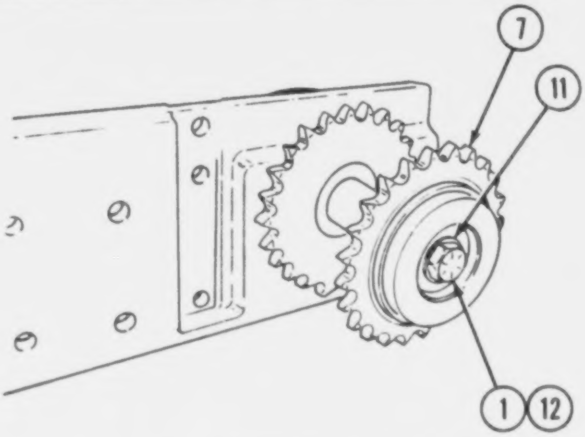
9. INSTALL RADIAL BEARING ON OUTER AND INNER MODIFIED IDLER SPROCKETS.
   - Install bearing (6) on sprocket (7). Use arbor press and inner and outer modified idler sprocket radial bearing installation tool.
   - Install retaining ring (8) on sprocket (7). Use 1 3/4 to 2 inch ring size retaining ring pliers.
   - Repeat above installation steps for other bearing.



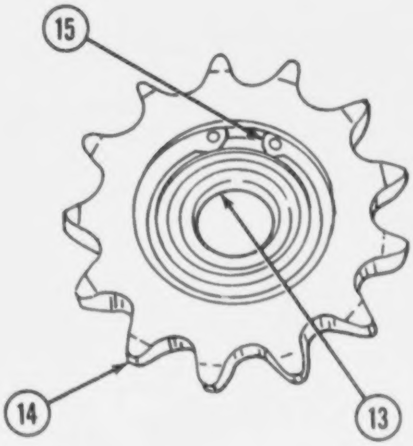
10. INSTALL INNER MODIFIED IDLER SPROCKET ON CONVEYOR IDLER SHAFT.
    - Apply light coat of grease to inside of sprocket (9) and outside of shaft (1).
    - Install and seat sprocket (9) against shoulder of shaft (1). Use soft faced hammer.
    - Install sleeve spacer (10) on shaft (1).



11. INSTALL OUTER MODIFIED IDLER SPROCKET ON CONVEYOR IDLER SHAFT.
    - Apply light coat of grease to inside of sprocket (7) and outside of shaft (1).
    - Install sprocket (7) on shaft (1). Use soft faced hammer.
    - Install washer (11) and new self-locking screw (12) on shaft (1). Use 1 1/8 inch socket with ratchet handle.



12. INSTALL RADIAL BEARING ON IDLER SPROCKET.
    - Install bearing (13) on sprocket (14). Use arbor press and idler sprocket radial bearing installation tool.
    - Install retaining ring (15) on sprocket (14). Use 1 3/4 to 2 inch ring size retaining ring pliers.



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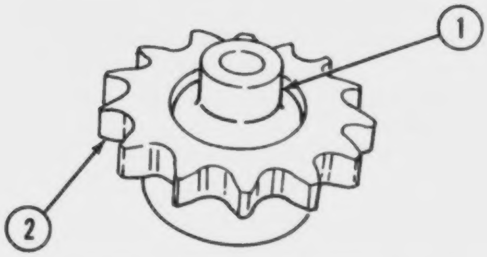
B. REASSEMBLY — Continued

13. INSTALL SHOULDERED SHAFT ON IDLER SPROCKET.
    - Install shaft (1) on sprocket (2). Use arbor press and shouldered shaft installation tool.



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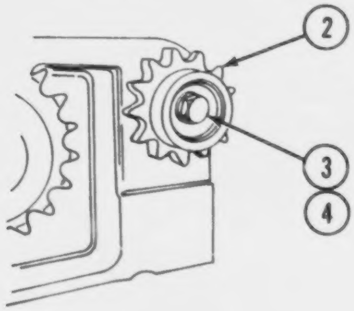
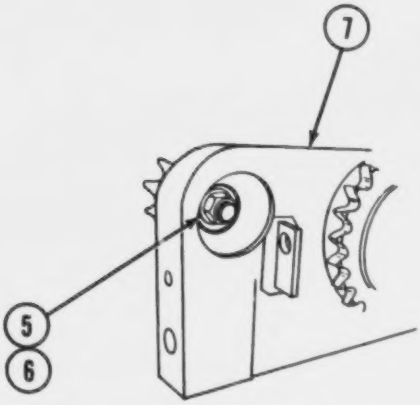
14. INSTALL IDLER SPROCKET ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install sprocket (2), washer (3), screw (4), washer (5), and new self-locking nut (6) on conveyor assembly (7). Use two 3/4 inch sockets with ratchet handles.





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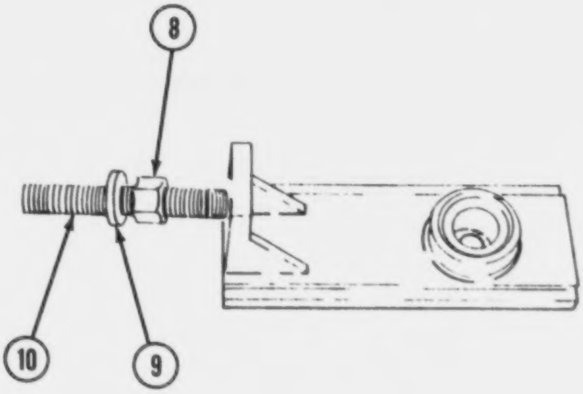
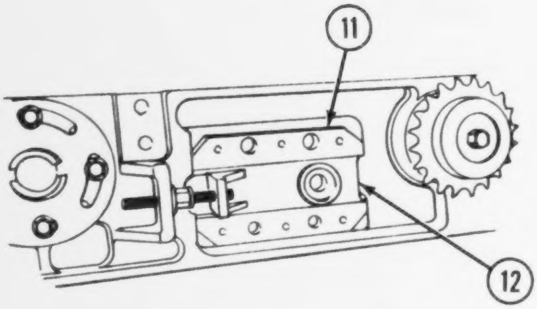
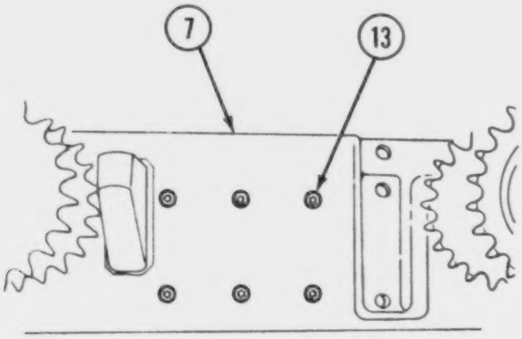
15. INSTALL TAKE-UP CARRIER ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install new self-locking nut (8) and washer (9) on take-up carrier stud (10). Use 3/4 inch open end wrench.

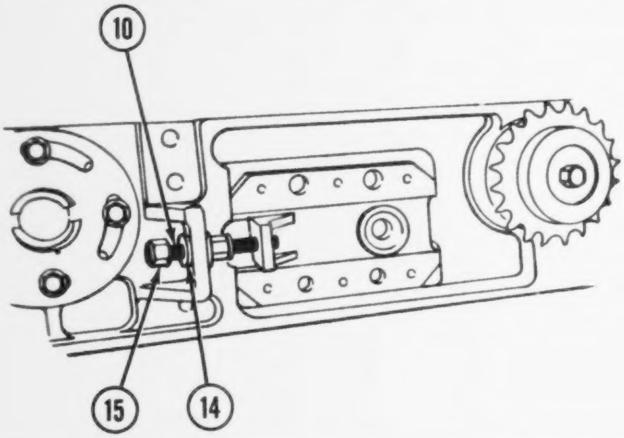


- Place two carrier guide rails (11) on take-up carrier (12).
- Install take-up carrier (12), two carrier guide rails (11), and six new self-locking screws (13) on conveyor assembly (7). Use 5/16 inch hex key.





- Install washer (14) and new self-locking nut (15) on end of threads of take-up carrier stud (10). Use 3/4 inch open end wrench. Do not tighten.



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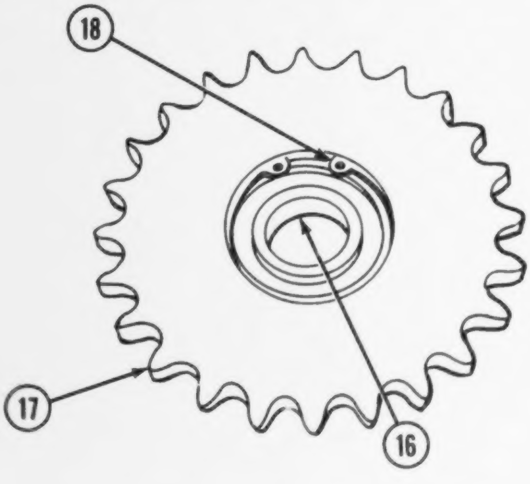
16. INSTALL RADIAL BEARING ON MODIFIED IDLER SPROCKET.
    - Install bearing (16) on sprocket (17). Use arbor press and inner and outer modified idler sprocket installation tool.
    - Install retaining ring (18) on sprocket (17). Use 1 3/4 inch to 2 inch ring size retaining ring pliers.



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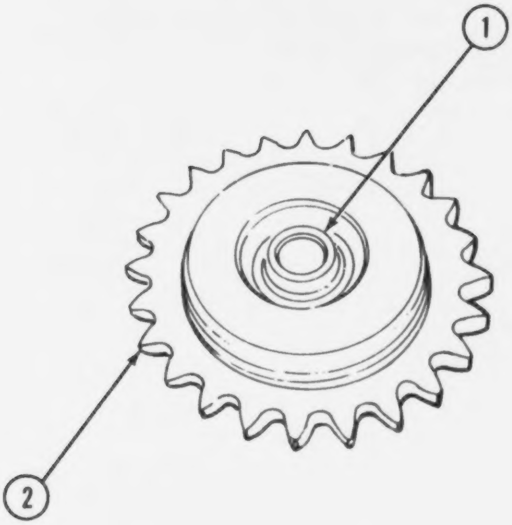
B. REASSEMBLY — Continued

17. INSTALL SHOULDERED SHAFT ON MODIFIED IDLER SPROCKET.
    - Install shaft (1) on sprocket (2). Use arbor press and shouldered shaft installation tool.



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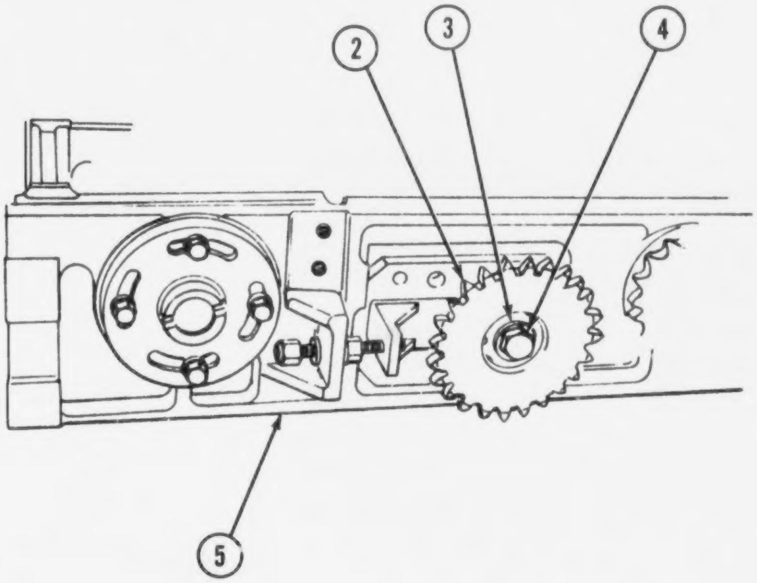
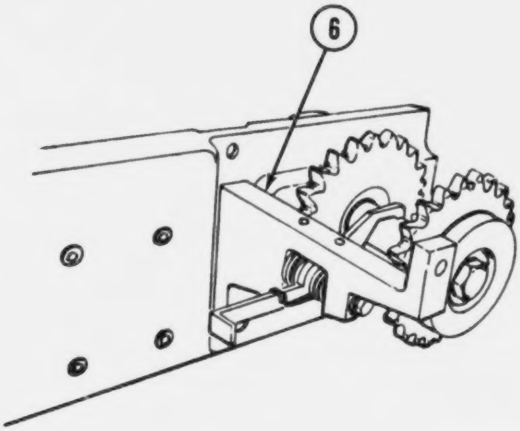
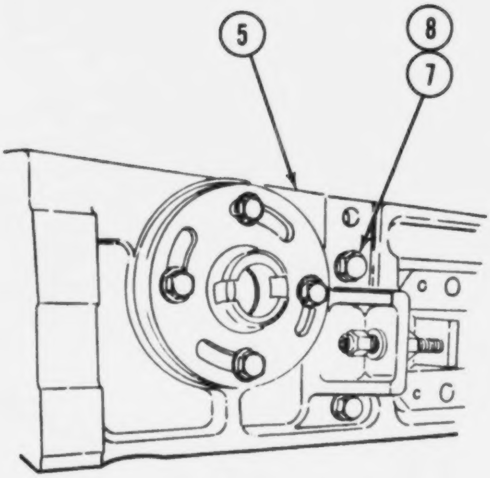
18. INSTALL MODIFIED IDLER SPROCKET ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install sprocket (2), washer (3), and new self-locking screw (4) on conveyor assembly (5). Use 1 1/8 inch socket with ratchet handle.



19. INSTALL INPUT SENSOR LEVER ASSEMBLY ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install lever assembly (6), two washers (7), and new self-locking screws (8) on conveyor assembly (5). Use 3/4 inch socket with ratchet handle.





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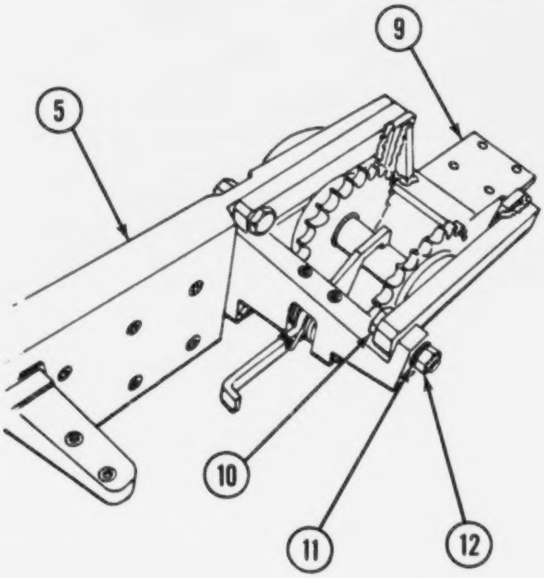
20. INSTALL INFEED CHUTE PIVOT FRAME ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install pivot frame (9), two screws (10), washers (11), and new self-locking nuts (12) on conveyor assembly (5). Use 1 inch box end wrench and 3/4 inch socket with ratchet handle.



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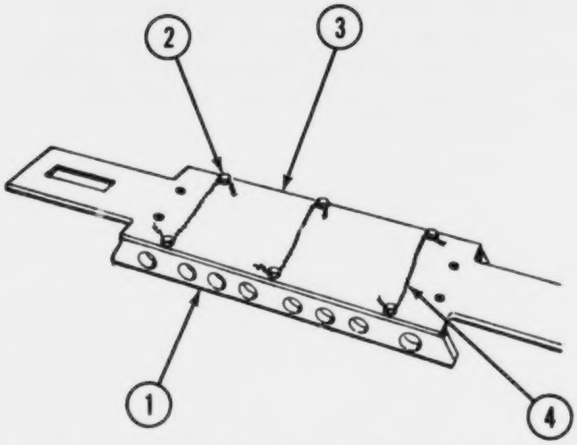
B. REASSEMBLY — Continued

WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

21. INSTALL TWO CHAIN GUIDES ON MINE GUIDE.
    - Install two chain guides (1) and six new self-locking screws (2) on mine guide (3). Use 7/16 inch socket with ratchet handle.
    - Install new safety wire (4) on six self-locking screws (2). Use slip joint pliers.



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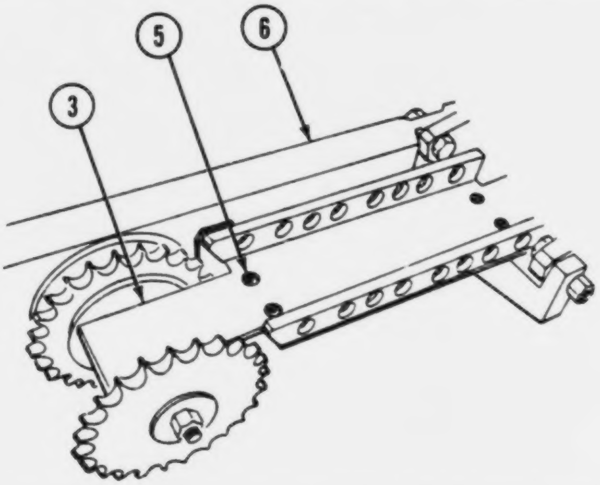
22. INSTALL MINE GUIDE ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install mine guide (3) and four new self-locking screws (5) on conveyor assembly (6). Use 5/32 inch hex key.



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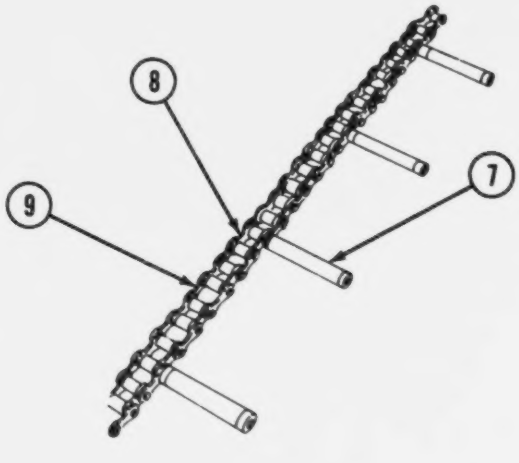
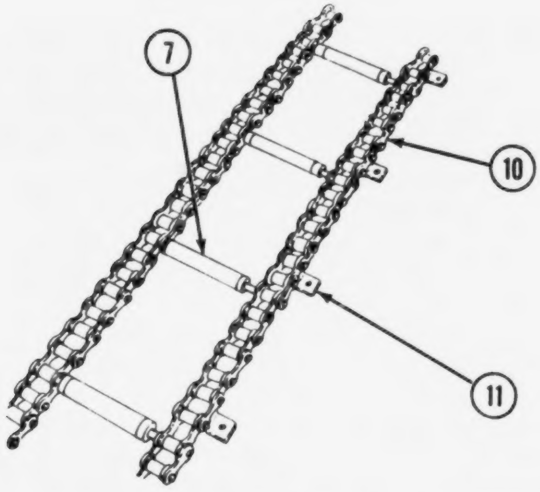
23. REASSEMBLE OUTER AND INNER ROLLER CHAINS.
    - Install 10 tubular flight bars (7) on 10 extended pin attachment links (8) on outer chain (9).



- Install inner chain (10), with metal tabs (11) down, on 10 tubular flight bars (7).



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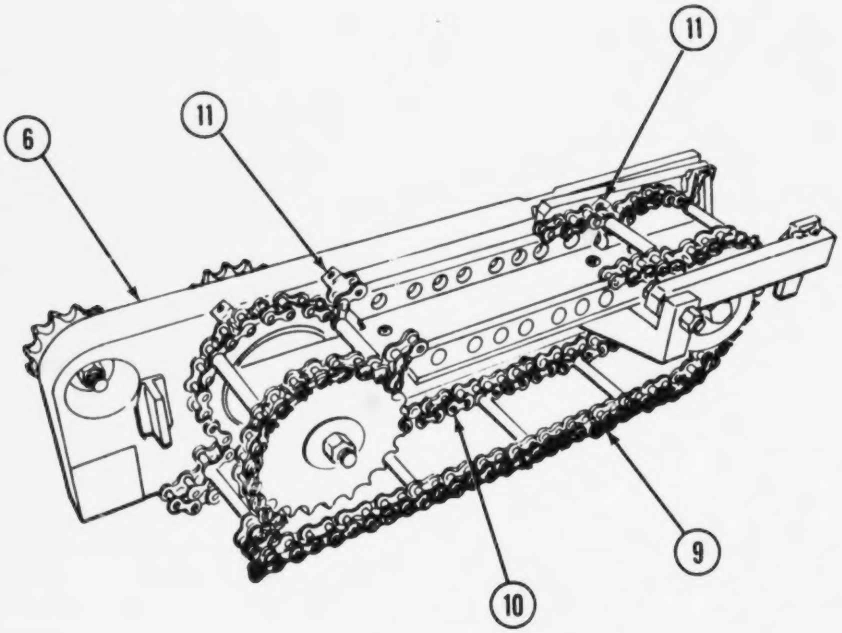
24. CENTER OUTER CHAIN (9) AND INNER CHAIN (10) ON CONVEYOR ASSEMBLY (6) WITH METAL TABS (11) TOWARD CONVEYOR ASSEMBLY.



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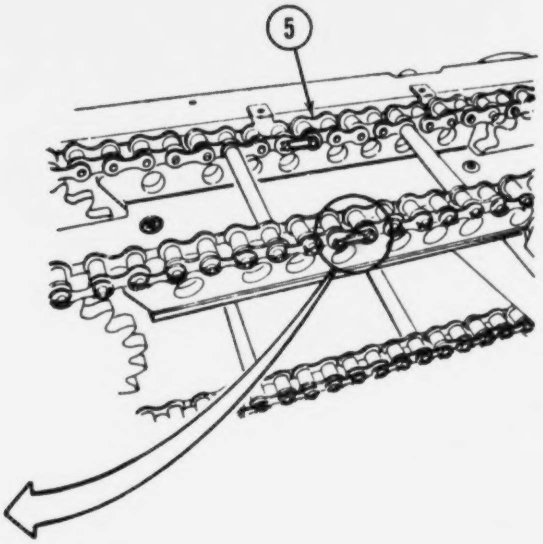
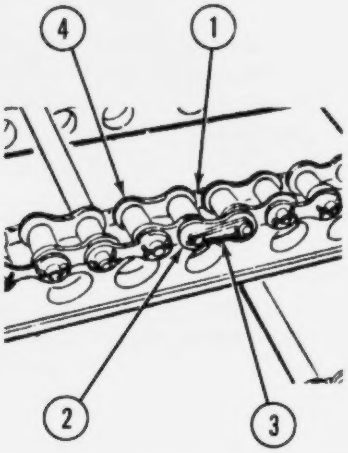
B. REASSEMBLY — Continued

25. INSTALL ROLLER CHAIN LINK ON OUTER AND INNER ROLLER CHAINS.
   - Install link (1), side plate (2), and spring clip (3) on outer chain (4). Use 1/4 inch flat tip screwdriver.
   - Repeat above installation step for inner chain (5).





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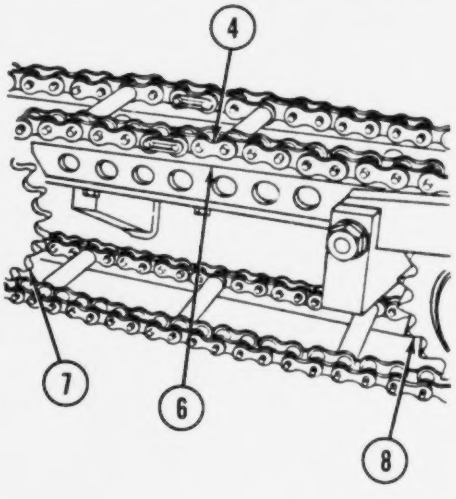
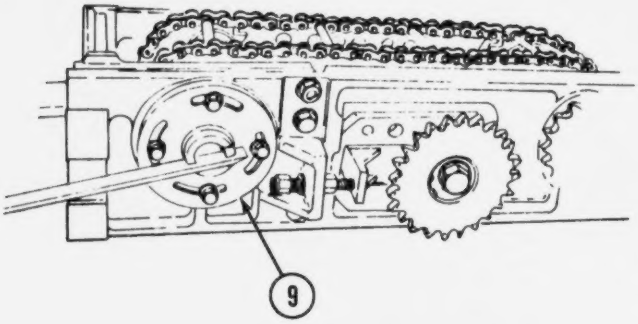
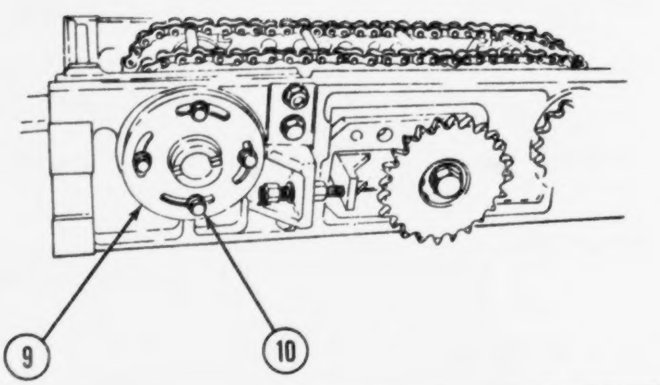
26. SET ROLLER CHAIN DEFLECTION.
   - Measure deflection between outer chain (4) and top of outer chain guide (6) midway between outer conveyor drive sprocket (7) and outer modified idler sprocket (8). Use steel rule. Deflection should be 3/8 in. (9.5 mm).
   - If deflection is not correct, turn conveyor idler shaft adjusting plate (9) right to tighten outer chain (4). Use pry bar.
   - If deflection is correct, tighten four self-locking screws on conveyor idler shaft adjusting plate. (See next step.)





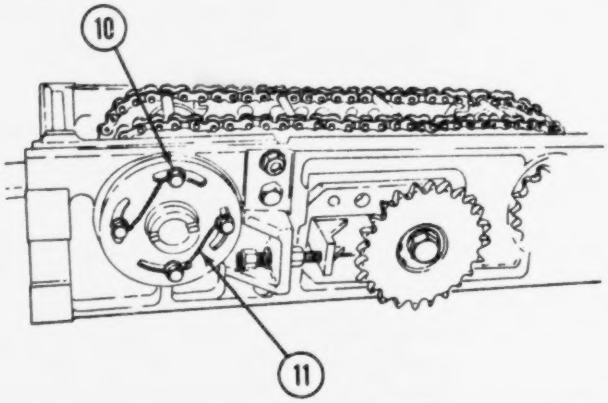
27. TIGHTEN FOUR SELF-LOCKING SCREWS ON CONVEYOR IDLER SHAFT ADJUSTING PLATE.
    - Tighten four self-locking screws (10) on conveyor idle shaft adjusting plate (9). Use 5/8 inch socket with ratchet handle.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

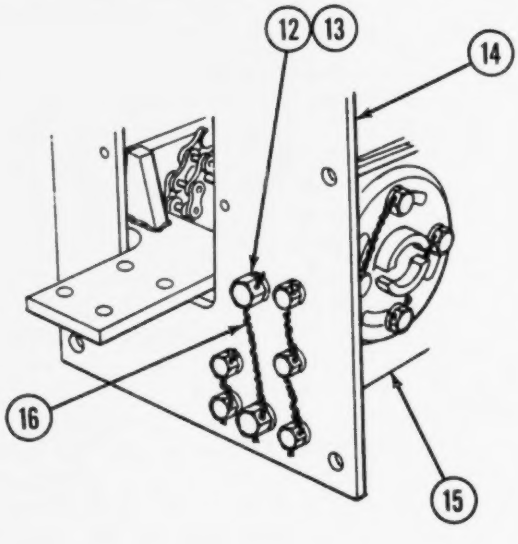
28. INSTALL NEW SAFETY WIRE ON FOUR SELF-LOCKING SCREWS.
    - Install new safety wire (11) on four self-locking screws (10). Use slip joint pliers.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

29. INSTALL LEFT END COVER ASSEMBLY ON LEFT INFEED CONVEYOR ASSEMBLY.
    - Install two washers (12), new self-locking screws (13), and cover assembly (14) on conveyor assembly (15). Use 15/16 inch socket with ratchet handle.
    - Install new safety wire (16) on two self-locking screws (13). Use slip joint pliers.



30. LUBRICATE LEFT INFEED CONVEYOR ASSEMBLY. (SEE LO 9-1095-205-12.)

GO TO NEXT PAGE

B. REASSEMBLY — Continued

NOTE

FOLLOW-ON MAINTENANCE:

Install Left Infeed Conveyor Proximity Sensors. (See Left Infeed Conveyor Proximity Sensors, Page 6-37.)

Install Left Magazine Internal Wiring Harness. (See Left Magazine Control Wiring Installation, Page 20-3.)

END OF TASK

18-5 RIGHT INFEED CONVEYOR ASSEMBLY

DESCRIPTION

This task covers:
A. DISASSEMBLY (p 18-40)
B. REASSEMBLY (p 18-55)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit 5180-00-177-7033:
  - 1/4 inch flat tip screwdriver
  - 5/32 inch hex key
  - 7/16 inch socket
  - 3/4 inch socket (2)
  - 15/16 inch socket
  - 1 1/8 inch socket
  - 5/8 inch socket
  - Ball peen hammer
  - Ratchet handle (2)
  - 6 inch steel rule
  - 1 inch box end wrench
  - 3/4 inch open end wrench
  - Slip joint pliers
  - Diagonal cutting pliers
  - 6 inch adjustable wrench
  - Pry bar
- Goggles 4240-00-269-7912
- Arbor press 3444-00-449-7295
- 5/16 inch hex key 5120-00-240-5274
- 1 3/4 to 2 inch ring size retaining ring pliers 5120-00-293-0045
- 1/16 inch diameter drive pin punch 5120-00-240-6082
- 3 to 3 1/2 inch ring size retaining ring pliers 5120-00-293-0046
- Mechanical puller 5120-00-595-9305
- Soft faced hammer 5120-00-903-8553
- Shouldered shaft outer radial bearing installation tool, SK2435, Appendix C
- Shouldered shaft inner radial bearing installation tool, SK2436, Appendix C
- Inner and outer modified idler sprocket radial bearing installation tool, SK2437, Appendix C
- Idler sprocket radial bearing installation tool, SK2438, Appendix C

Tools and Special Tools — Continued:
- Shouldered shaft installation tool, SK2439, Appendix C
- Upright drilling machine 3413-00-165-4136
- 25/32 inch twist drill 5133-00-228-1337
- 17/32 inch twist drill 5133-00-189-9324
- 11/32 inch twist drill 5133-00-227-9664
- 9/16 to 3/4 inch screw extractor 5120-00-240-5219
- 7/16 to 9/16 inch screw extractor 5120-00-240-5222
- 1/4 to 5/16 inch screw extractor 5120-00-580-2359

Materials/Parts:
- Safety wire, Item 24, Appendix B
- Grease, Item 11, Appendix B
- Self-locking screw (2) (96906) MS18153-137L
- Self-locking screw 5305-01-070-7096
- Self-locking screw 5306-01-078-5065
- Self-locking screw 5306-01-162-5706
- Self-locking screw 5306-01-163-2428
- Self-locking screw (4) (96906) MS18154-87L
- Self-locking screw (96906) MS18154-110L
- Self-locking screw (6) (96906) MS18154-6L
- Self-locking screw (6) 5305-00-469-3939
- Self-locking screw (4) (96906) MS24667-29L
- Self-locking nut (6) 5310-00-225-6993
- Threaded insert (2) 5340-00-451-8983
- Threaded insert (8) (96906) MS51831-105
- Threaded insert (2) 5340-01-076-5512
- Lubricating oil (see LO 9-1095-205-12), Item 18, Appendix B

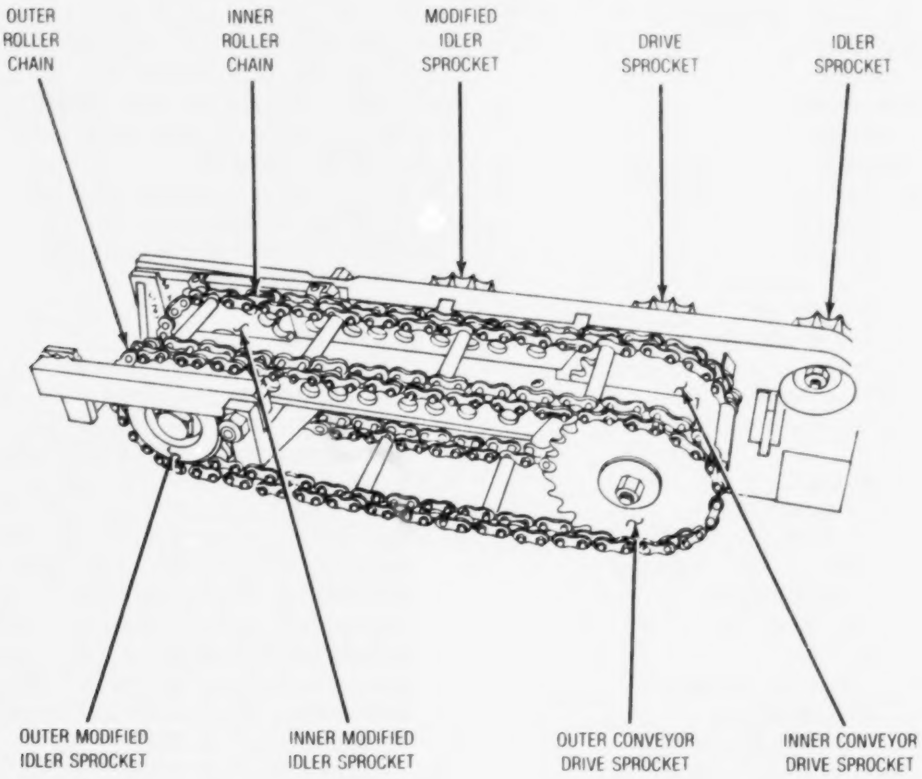
References:
- LO 9-1095-205-12
- RIGHT INFEED CONVEYOR PROXIMITY SENSORS, Page 7-21
- RIGHT MAGAZINE CONTROL WIRING INSTALLATION, Page 20-55

GO TO NEXT PAGE

18-5 RIGHT INFEED CONVEYOR ASSEMBLY — Continued

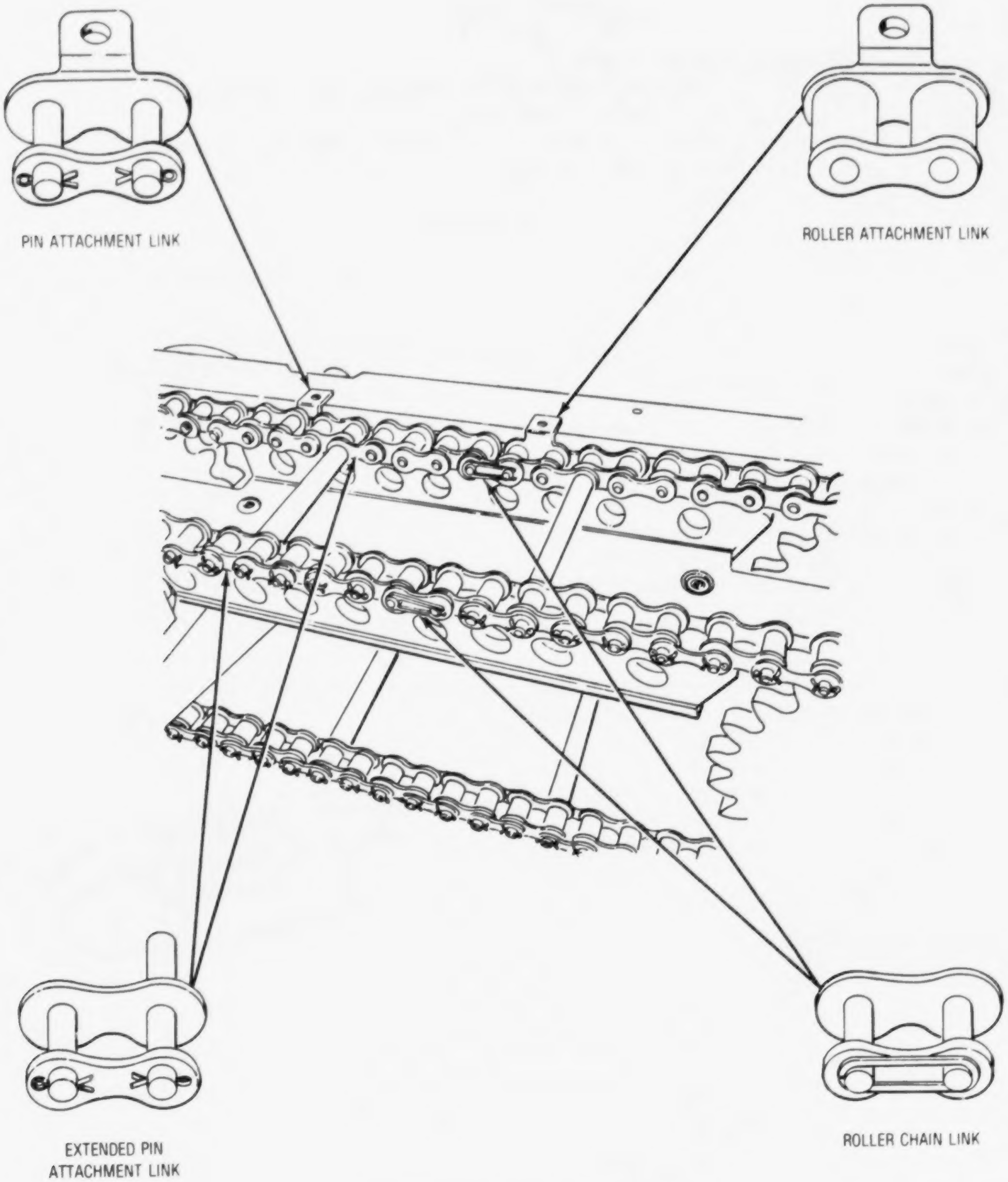
OVERVIEW

The right infeed conveyor assembly has seven sprockets and two roller chains. Use the following locator to help you find these sprockets and roller chains during disassembly and reassembly. Roller chains are a matched set. If one chain is to be replaced, both must be replaced.


OUTER ROLLER CHAIN
INNER ROLLER CHAIN
MODIFIED IDLER SPROCKET
DRIVE SPROCKET
IDLER SPROCKET
OUTER MODIFIED IDLER SPROCKET
INNER MODIFIED IDLER SPROCKET
OUTER CONVEYOR DRIVE SPROCKET
INNER CONVEYOR DRIVE SPROCKET

Locator for Right Infeed Conveyor Assembly Sprockets and Roller Chains

The two roller chains (outer and inner) on the right infeed conveyor assembly have special links. Use the following locator to help you find these special links.


PIN ATTACHMENT LINK
ROLLER ATTACHMENT LINK
EXTENDED PIN ATTACHMENT LINK
ROLLER CHAIN LINK

Locator for Special Links on Roller Chains

GO TO NEXT PAGE

18-5 RIGHT INFEED CONVEYOR ASSEMBLY — Continued

A. DISASSEMBLY

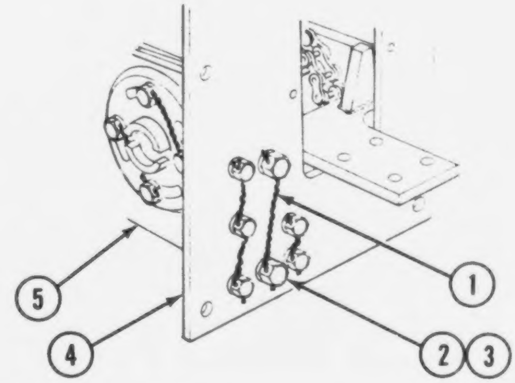
NOTE

PRELIMINARY PROCEDURES:
Remove Right Magazine Internal Wiring Harness. (See Right Magazine Control Wiring Installation, Page 20-55.)
Remove Right Infeed Conveyor Proximity Sensors. (See Right Infeed Conveyor Proximity Sensors, Page 7-21.)

WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

1. REMOVE RIGHT END COVER ASSEMBLY FROM RIGHT INFEED CONVEYOR ASSEMBLY.
   - Remove safety wire (1) from two self-locking screws (2). Use diagonal cutting pliers. Discard safety wire.
   - Remove two self-locking screws (2), washers (3), and cover assembly (4) from conveyor assembly (5). Use 15/16 inch socket with ratchet handle. Discard self-locking screws.



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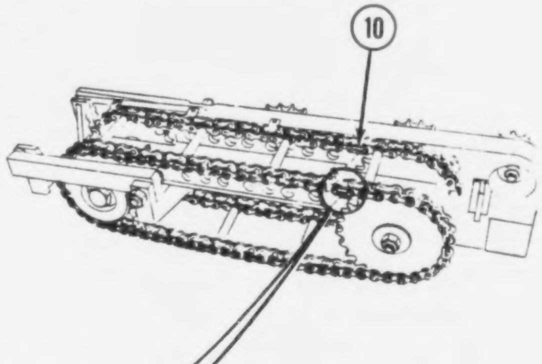
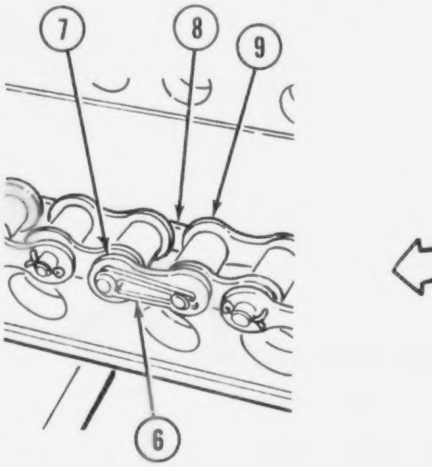
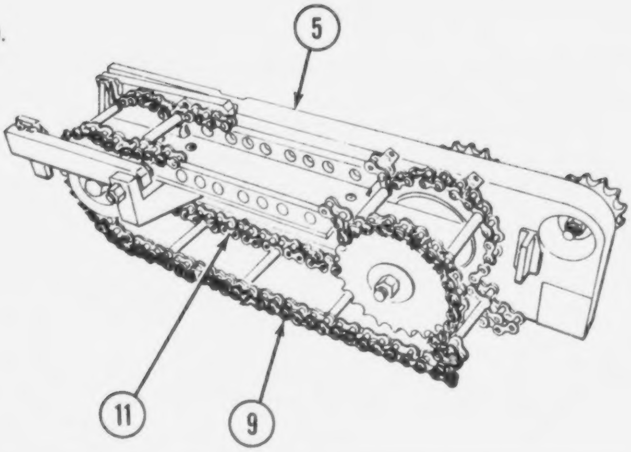
2. REMOVE ROLLER CHAIN LINK FROM OUTER AND INNER ROLLER CHAINS.
   - Remove spring clip (6), side plate (7), and link (8) from outer chain (9). Use 1/4 inch flat tip screwdriver.
   - Repeat above removal step for other link (10).

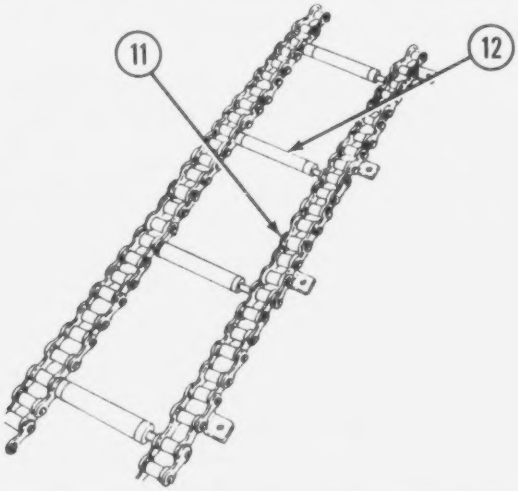




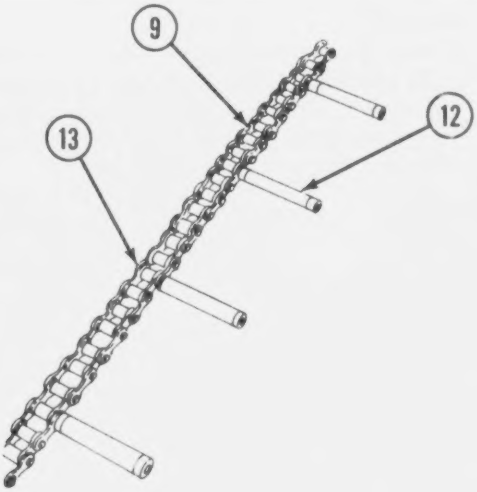
3. REMOVE OUTER CHAIN (9) AND INNER CHAIN (11) FROM CONVEYOR ASSEMBLY (5).



4. SEPARATE OUTER AND INNER ROLLER CHAINS.
   - Separate inner chain (11) from 10 tubular flight bars (12).



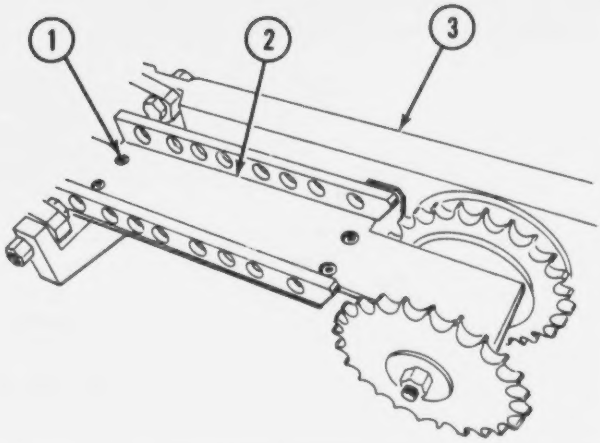
- Remove 10 tubular flight bars (12) from 10 extended pin attachment links (13) on outer chain (9).



GO TO NEXT PAGE

A. DISASSEMBLY — Continued

5. REMOVE MINE GUIDE FROM RIGHT INFEED CONVEYOR ASSEMBLY.
   - Remove four self-locking screws (1) and mine guide (2) from conveyor assembly (3). Use 5/32 inch hex key. Discard self-locking screws.



WARNING

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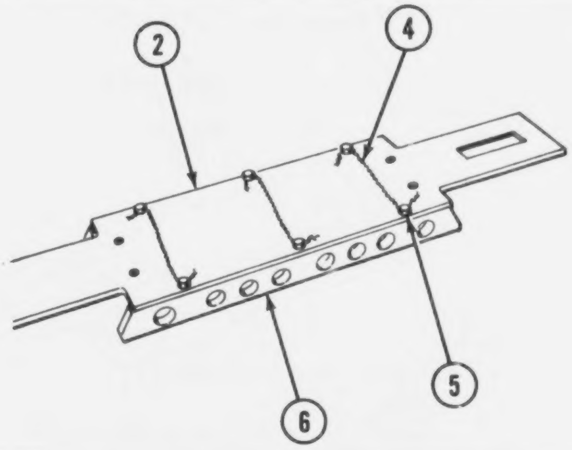
6. REMOVE TWO CHAIN GUIDES FROM MINE GUIDE.
   - Remove safety wire (4) from six self-locking screws (5). Use diagonal cutting pliers. Discard safety wire.
   - Remove six self-locking screws (5) and two chain guides (6) from mine guide (2). Use 7/16 inch socket with ratchet handle. Discard self-locking screws.



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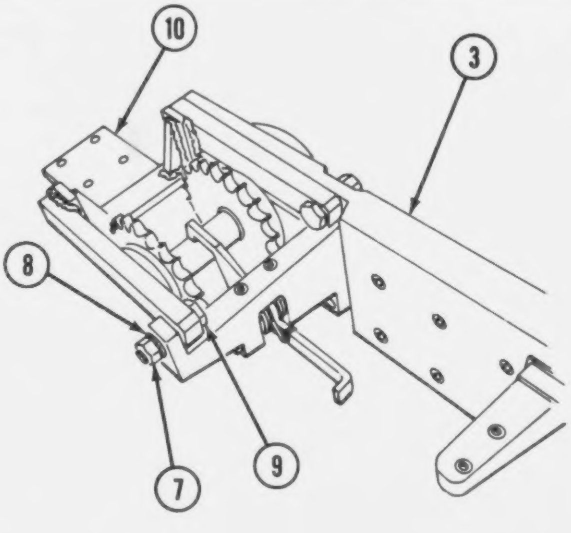
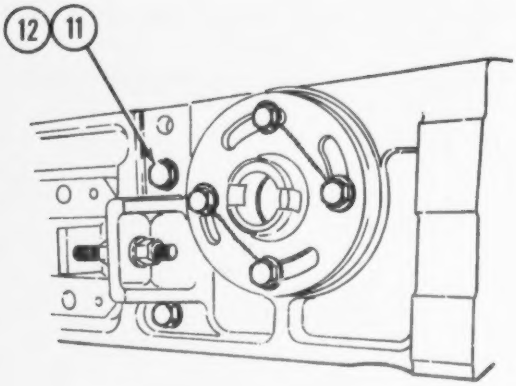
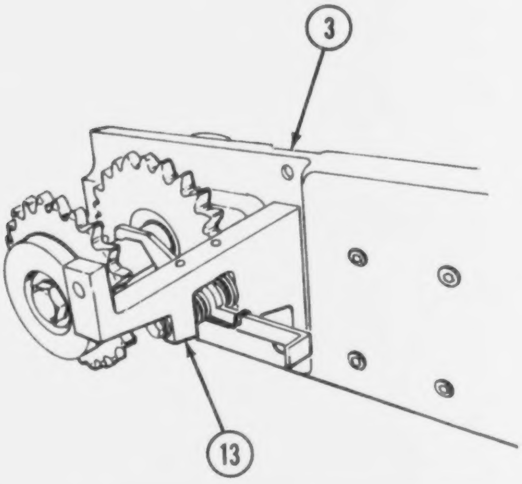
7. REMOVE INFEED CHUTE PIVOT FRAME FROM RIGHT INFEED CONVEYOR ASSEMBLY.
   - Remove two self-locking nuts (7), washers (8), screws (9), and pivot frame (10) from conveyor assembly (3). Use 1 inch box end wrench and 3/4 inch socket with ratchet handle. Discard self-locking nuts.



8. REMOVE INPUT SENSOR LEVER ASSEMBLY FROM RIGHT INFEED CONVEYOR ASSEMBLY.
   - Remove two self-locking screws (11), washers (12), and lever assembly (13) from conveyor assembly (3). Use 3/4 inch socket with ratchet handle. Discard self-locking screws.





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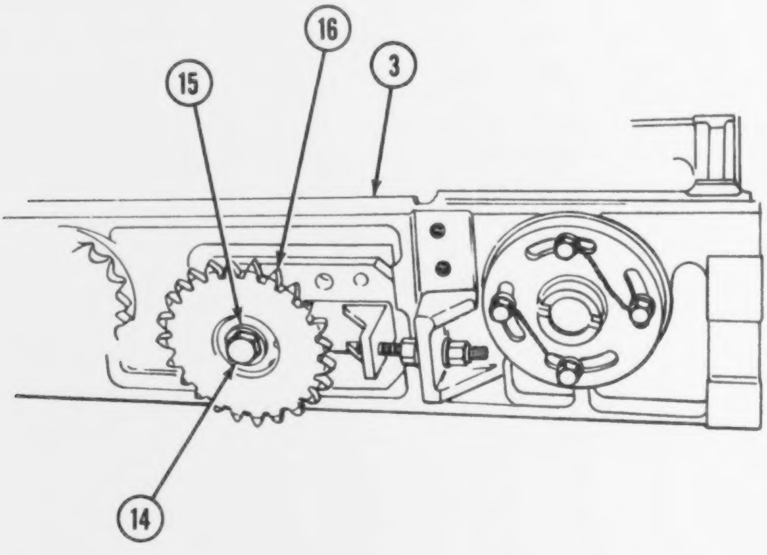
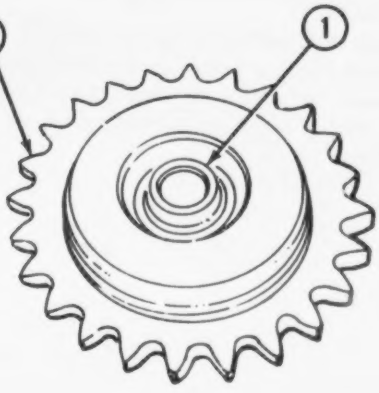
9. REMOVE MODIFIED IDLER SPROCKET FROM RIGHT INFEED CONVEYOR ASSEMBLY.
   - Remove self-locking screw (14), washer (15), and sprocket (16) from conveyor assembly (3). Use 1 1/8 inch socket with ratchet handle. Discard self-locking screw.



GO TO NEXT PAGE

A. DISASSEMBLY — Continued

10. REMOVE SHOULDERED SHAFT FROM MODIFIED IDLER SPROCKET.
    - Remove shaft (1) from sprocket (2). Use arbor press.



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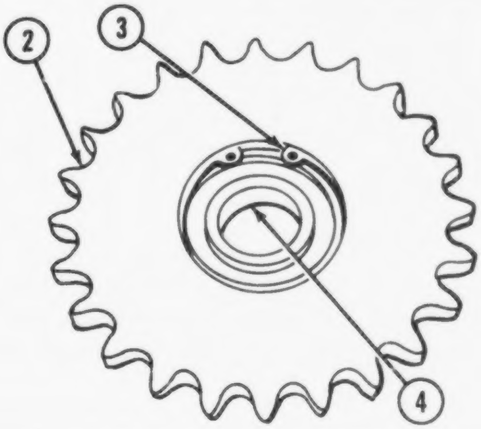
11. REMOVE RADIAL BEARING FROM MODIFIED IDLER SPROCKET.
    - Remove retaining ring (3) from sprocket (2). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (4) from sprocket (2). Use arbor press.



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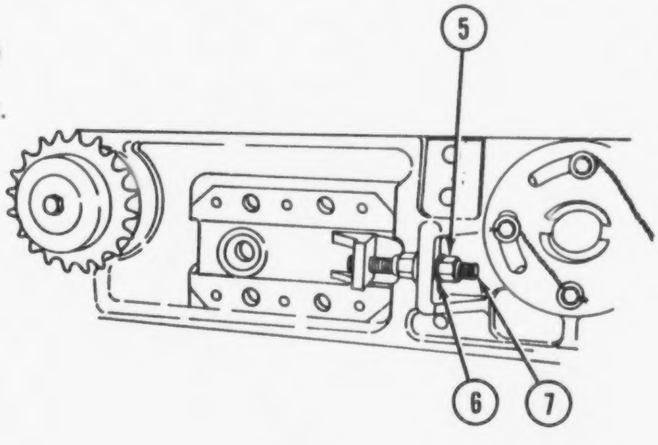
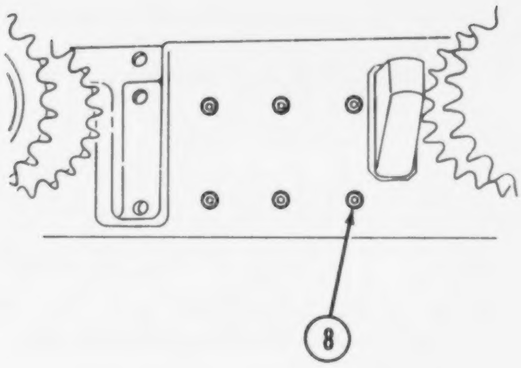
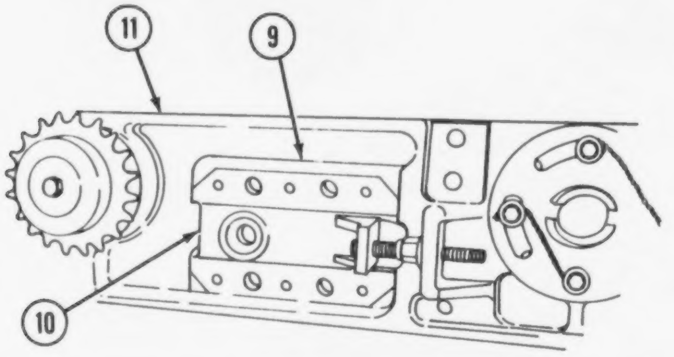
12. REMOVE TAKE-UP CARRIER FROM RIGHT INFEED CONVEYOR ASSEMBLY.
    - Remove self-locking nut (5) and washer (6) from take-up carrier stud (7). Use 3/4 inch open end wrench. Discard self-locking nut.

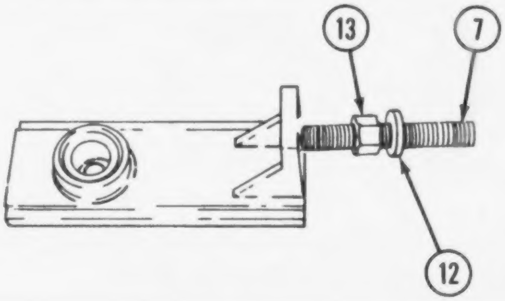


- Remove six self-locking screws (8), two take-up carrier guide rails (9), and take-up carrier (10) from conveyor assembly (11). Use 5/16 inch hex key. Discard self-locking screws.





- Remove washer (12) and self-locking nut (13) from take-up carrier stud (7). Use 3/4 inch open end wrench. Discard self-locking nut.



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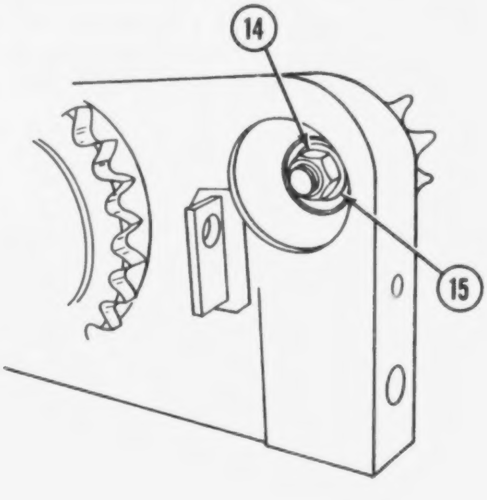
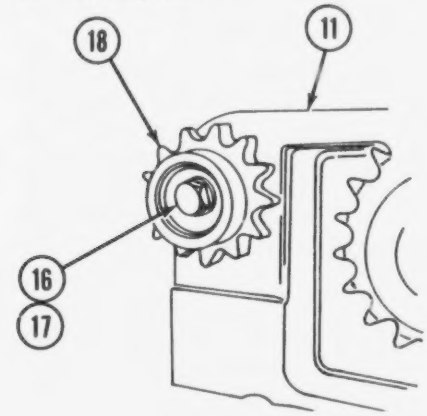
13. REMOVE IDLER SPROCKET FROM RIGHT INFEED CONVEYOR ASSEMBLY.
    - Remove self-locking nut (14), washer (15), screw (16), washer (17) and sprocket (18) from conveyor assembly (11). Use two 3/4 inch sockets with ratchet handles. Discard self-locking nut.





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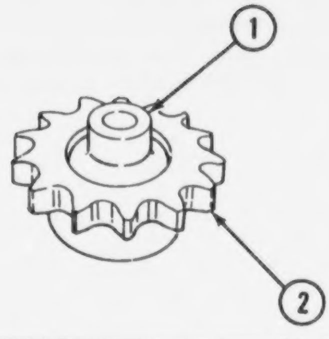
A. DISASSEMBLY — Continued

14. REMOVE SHOULDERED SHAFT FROM IDLER SPROCKET.
    - Remove shaft (1) from sprocket (2). Use arbor press.



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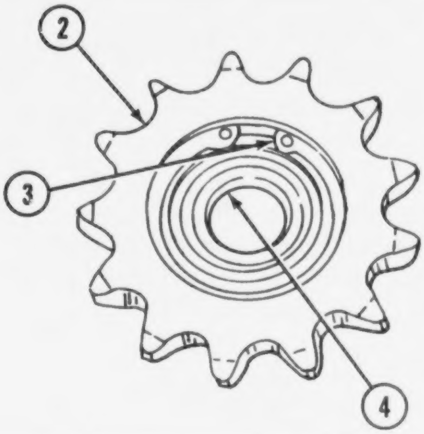
15. REMOVE RADIAL BEARING FROM IDLER SPROCKET.
    - Remove retaining ring (3) from sprocket (2). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (4) from sprocket (2). Use arbor press.



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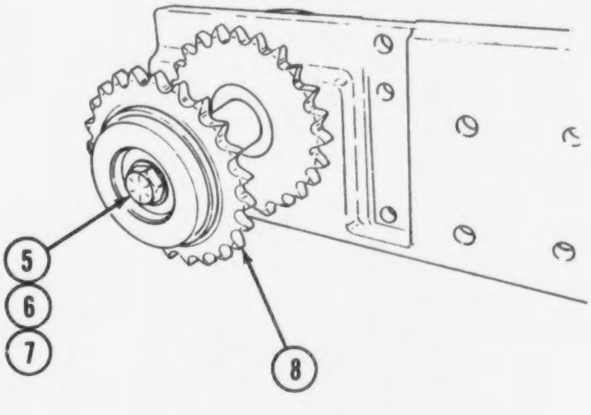
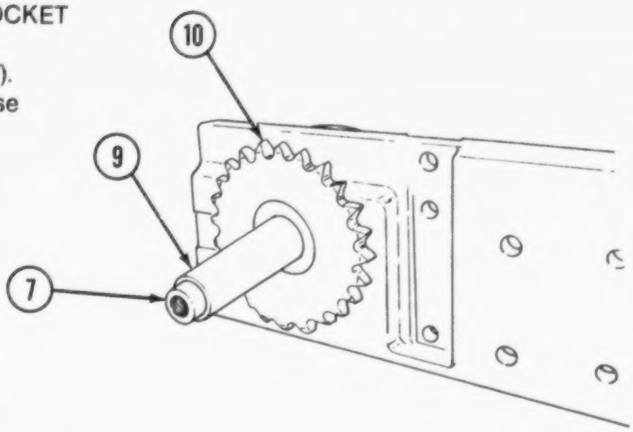
16. REMOVE OUTER MODIFIED IDLER SPROCKET FROM CONVEYOR IDLER SHAFT.
    - Remove self-locking screw (5) and washer (6) from shaft (7). Use 1 1/8 inch socket with ratchet handle. Discard self-locking screw.
    - Remove sprocket (8) from shaft (7). Use soft faced hammer.



17. REMOVE INNER MODIFIED IDLER SPROCKET FROM CONVEYOR IDLER SHAFT.
    - Remove sleeve spacer (9) from shaft (7).
    - Remove sprocket (10) from shaft (7). Use soft faced hammer.



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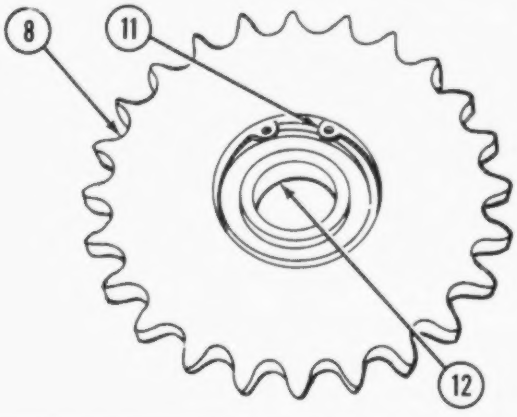
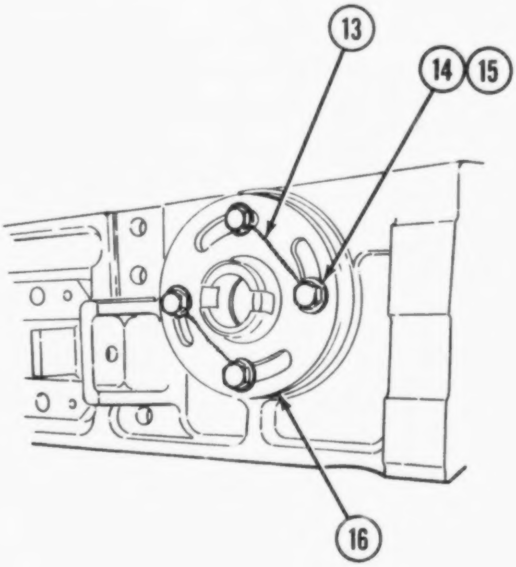
18. REMOVE RADIAL BEARING FROM OUTER AND INNER MODIFIED IDLER SPROCKETS.
    - Remove retaining ring (11) from sprocket (8). Use 1 3/4 to 2 inch ring size retaining ring pliers.
    - Remove bearing (12) from sprocket (8). Use arbor press.
    - Repeat above removal steps for other sprocket.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

19. REMOVE CONVEYOR IDLER SHAFT FROM RIGHT INFEED CONVEYOR ASSEMBLY.
    - Remove safety wire (13) from four self-locking screws (14). Use diagonal cutting pliers. Discard safety wire.
    - Remove four self-locking screws (14) and washers (15) from conveyor idler shaft adjusting plate (16). Use 5/8 inch socket with ratchet handle. Discard self-locking screws.



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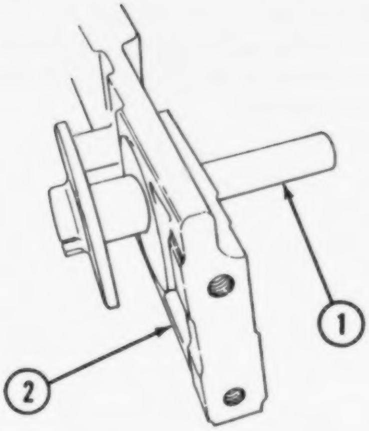
A. DISASSEMBLY — Continued

- Remove shaft (1) from conveyor assembly (2). Use soft faced hammer.



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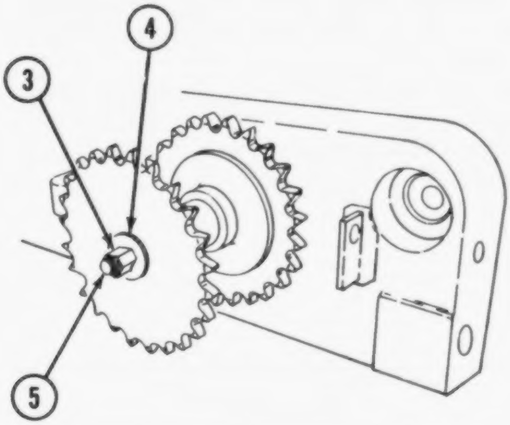
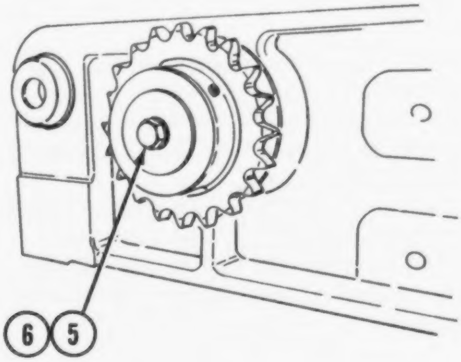
20. REMOVE OUTER CONVEYOR DRIVE SPROCKET FROM SHOULDERED SHAFT.

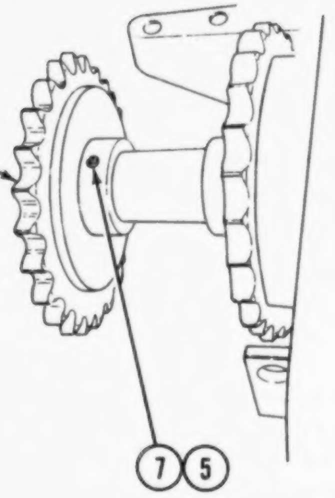
- Remove self-locking nut (3) and washer (4) from shaft (5). Use 3/4 inch socket with ratchet handle. Discard self-locking nut.



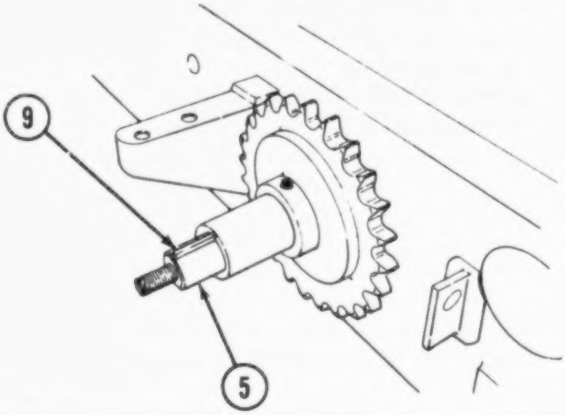
- Loosen self-locking screw (6) on shaft (5). Use 3/4 inch socket with ratchet handle.



- Remove setscrew (7) from sprocket (8). Use 5/32 inch hex key.
- Remove sprocket (8) from shaft (5). Use mechanical puller.



- Remove key (9) from shaft (5). Use slip joint pliers.



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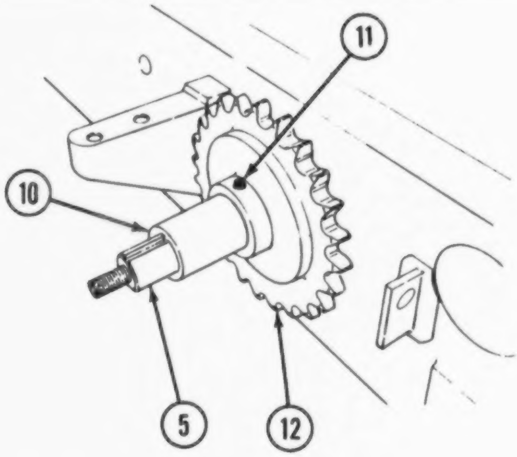
21. REMOVE INNER CONVEYOR DRIVE SPROCKET FROM SHOULDERED SHAFT.
    - Remove drive spacer (10) from shaft (5).
    - Remove setscrew (11) from sprocket (12). Use 5/32 inch hex key.
    - Remove sprocket (12) from shaft (5). Use mechanical puller.



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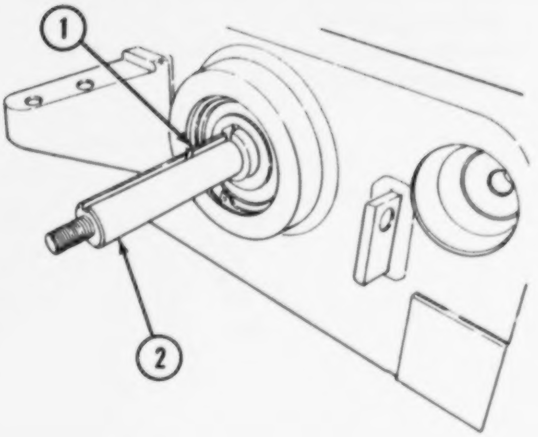
A. DISASSEMBLY — Continued

- Remove key (1) from shaft (2). Use slip joint pliers.



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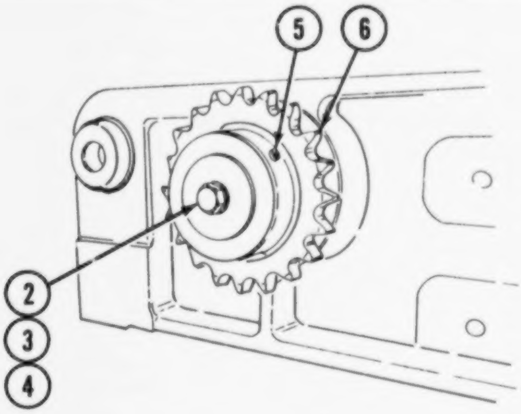
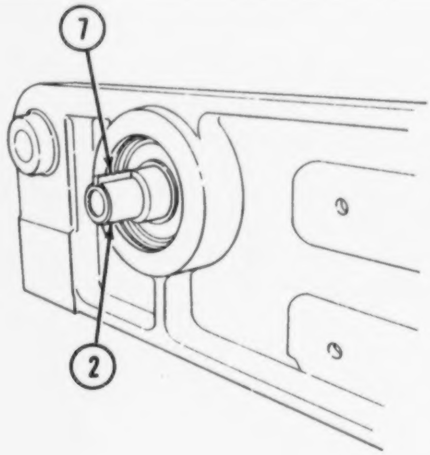
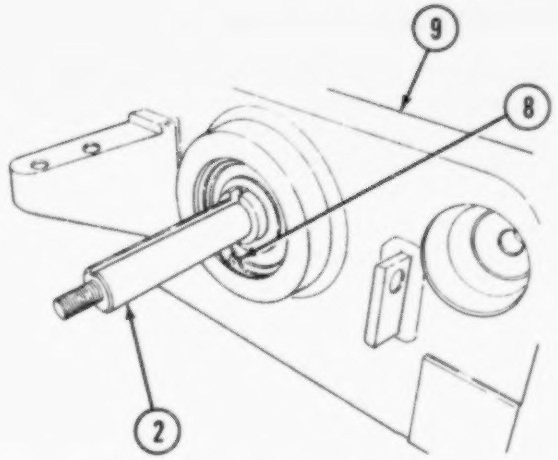
22. REMOVE DRIVE SPROCKET FROM SHOULDERED SHAFT.
    - Remove self-locking screw (3) and washer (4) from shaft (2). Use 3/8 inch socket with ratchet handle. Discard self-locking screw.
    - Remove setscrew (5) from sprocket (6). Use 5/32 inch hex key.
    - Remove sprocket (6) from shaft (2). Use mechanical puller.



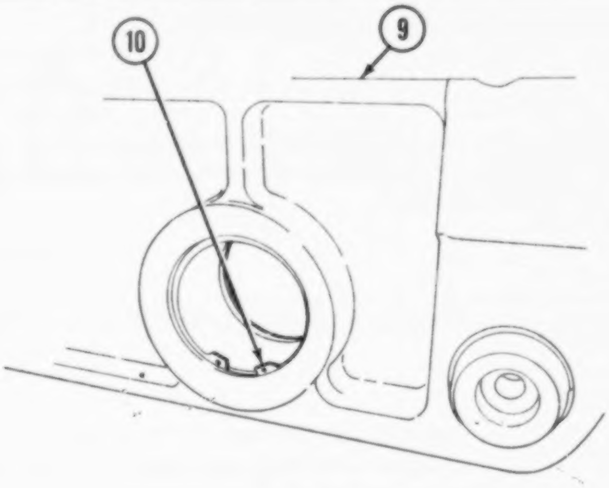
- Remove key (7) from shaft (2). Use slip joint pliers.



23. REMOVE SHOULDERED SHAFT WITH TWO RADIAL BEARINGS FROM RIGHT INFEED CONVEYOR ASSEMBLY.
    - Remove retaining ring (8) from conveyor assembly (9). Use 3 to 3 1/2 inch ring size retaining ring pliers.
    - Remove shaft (2) from conveyor assembly (9). Use arbor press.



- Remove opposite retaining ring (10) from conveyor assembly (9). Use 3 to 3 1/2 inch ring size retaining ring pliers.



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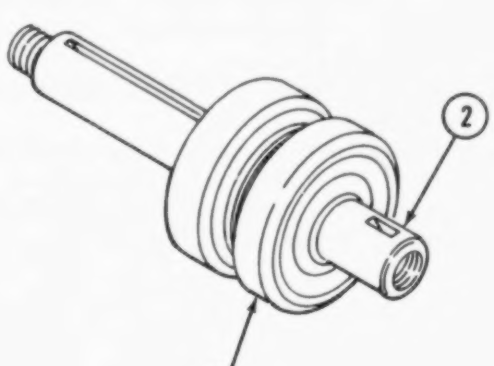
24. REMOVE INNER RADIAL BEARING FROM SHOULDERED SHAFT.
    - Remove bearing (11) from shaft (2). Use mechanical puller.



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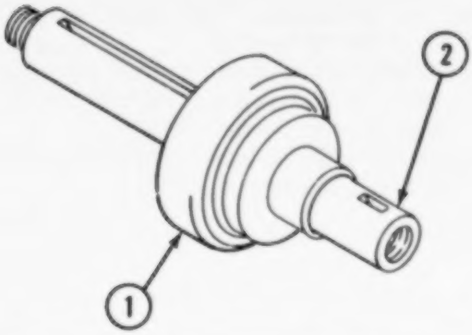
A. DISASSEMBLY — Continued

25. REMOVE OUTER RADIAL BEARING FROM SHOULDERED SHAFT.
    - Remove bearing (1) from shaft (2). Use mechanical puller.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

CAUTION

Infeed conveyor frame assembly is made of aluminum and easily damaged. Secure infeed conveyor frame assembly when drilling out old threaded inserts.

NOTE

Remove threaded inserts only if they are damaged.

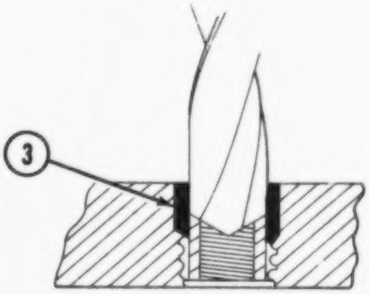
• • • •

Right infeed conveyor frame assembly has 12 threaded inserts. They are removed the same way. Step 26 shows typical threaded insert.

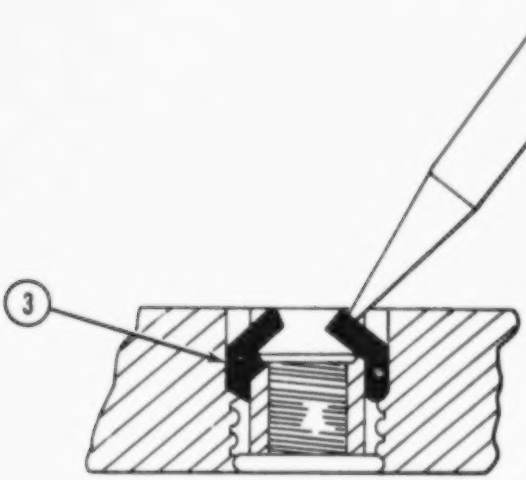
• • • •

The Threaded Insert Removal Chart on Page 18-54 shows location of threaded inserts. It also shows sizes of twist drills and screw extractors required for threaded insert removal.

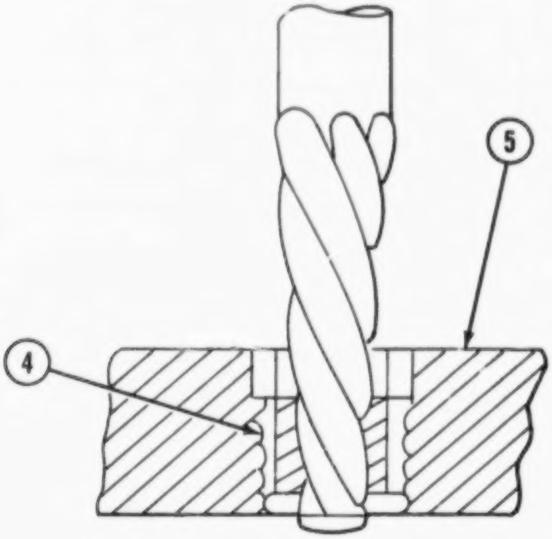
26. REMOVE THREADED INSERT FROM FRAME ASSEMBLY.
    - Drill out material between four insert keys (3) to 3/16 in. (4.8 mm) depth. Use twist drill with upright drilling machine. (See Threaded Insert Removal Chart, Page 18-54.)



- Bend four insert keys (3) inward, and break four insert keys off. Use 1/16 inch diameter drive pin punch and soft faced hammer.



- Remove insert (4) from frame assembly (5). Use screw extractor and 6 inch adjustable wrench. (See Threaded Insert Removal Chart, Page 18-54.) Discard insert.

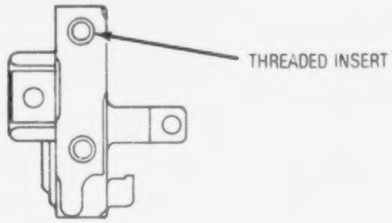


GO TO NEXT PAGE

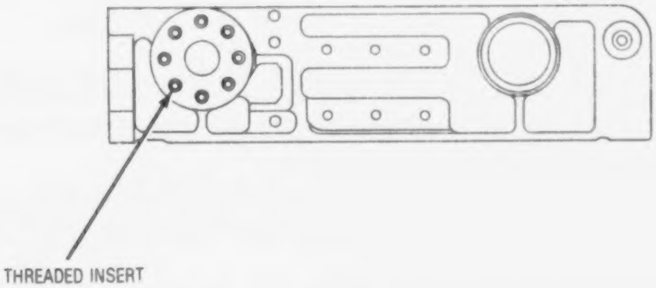
A. DISASSEMBLY — Continued

THREADED INSERT REMOVAL CHART

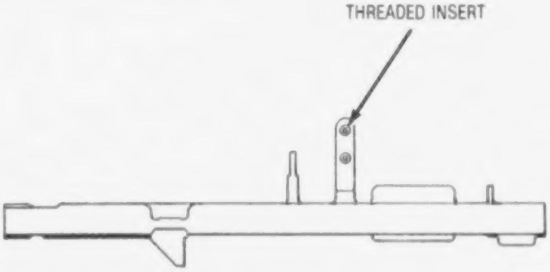
END VIEW
  Drill size:
    25/32 in. (19.8 mm)
  Screw extractor size:
    9/16 — 3/4 in. (14.3 — 19.1 mm)
  Numbers of inserts:
    2


THREADED INSERT

SIDE VIEW
  Drill size:
    17/32 in. (13.5 mm)
  Screw extractor size:
    7/16 — 9/16 in. (11.1 — 14.3 mm)
  Number of inserts:
    8


THREADED INSERT

TOP VIEW
  Drill size:
    11/32 in. (8.7 mm)
  Screw extractor size:
    1/4 — 5/16 in. (6.4 — 7.9 mm)
  Number of inserts:
    2


THREADED INSERT

B. REASSEMBLY

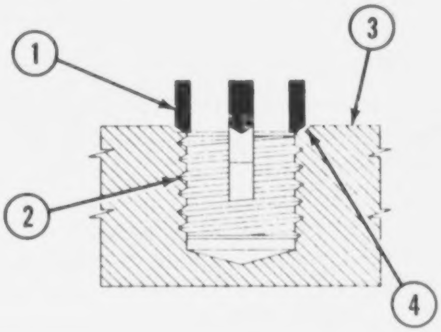
NOTE

Right infeed conveyor frame assembly has 12 threaded inserts. They are installed the same way. Step 1 shows typical threaded insert. If threaded inserts were not removed, go to step 2.

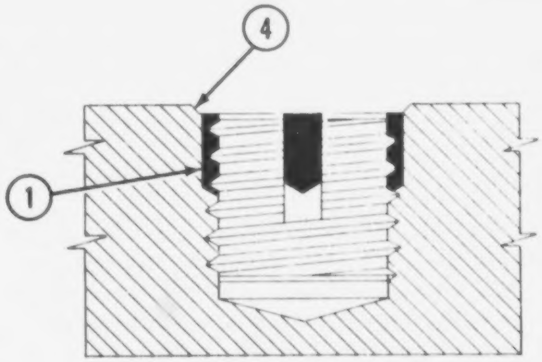
• • • •

Threaded Insert Removal Chart, Page 18-54, shows location of threaded inserts.

1. INSTALL NEW THREADED INSERT IN FRAME ASSEMBLY.
   - Hold four insert keys (1), and turn new insert (2) in frame assembly (3) until top of insert is below bottom of countersink (4). (See Threaded Insert Removal Chart, Page 18-54.)



   - Tap four insert keys (1) down until tops of four insert keys are below countersink (4). Use 1/16 inch diameter drive pin punch and ball peen hammer.



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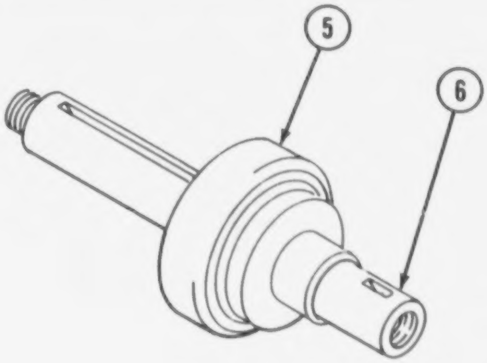
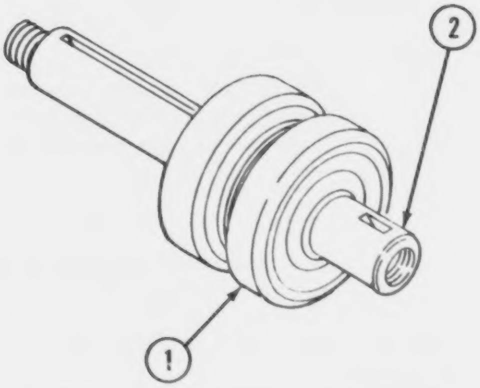
2. INSTALL OUTER RADIAL BEARING ON SHOULDERED SHAFT.
   - Install bearing (5) on shaft (6). Use arbor press and shouldered shaft outer radial bearing installation tool.



GO TO NEXT PAGE

B. REASSEMBLY — Continued

3. INSTALL INNER RADIAL BEARING ON SHOULDERED SHAFT.
   - Install bearing (1) on shaft (2). Use arbor press and shouldered shaft inner radial bearing installation tool.



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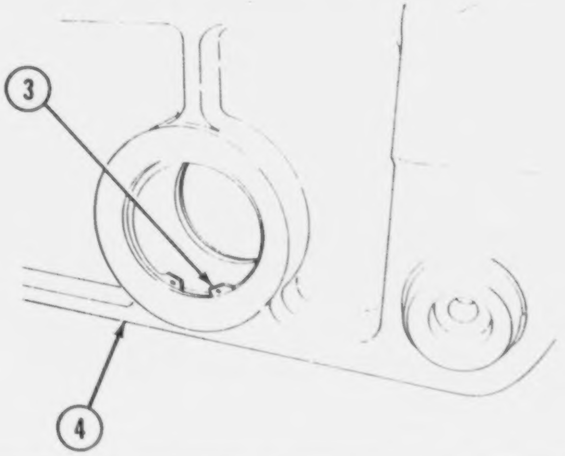
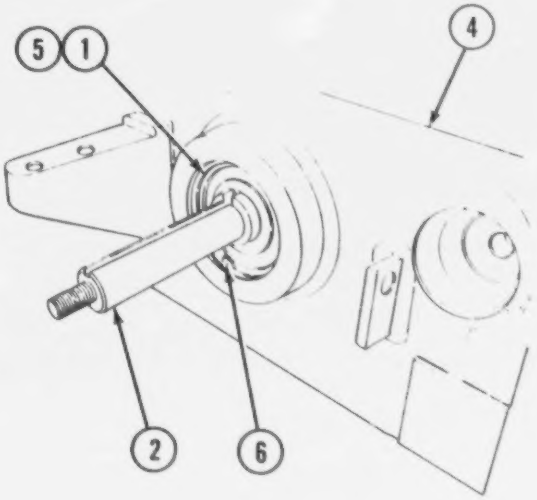
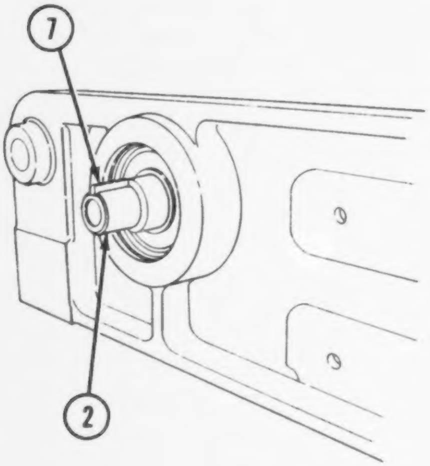
4. INSTALL SHOULDERED SHAFT WITH TWO RADIAL BEARINGS ON RIGHT INFEED CONVEYOR ASSEMBLY.
   - Install retaining ring (3) in conveyor assembly (4). Use 3 to 3 1/2 inch ring size retaining ring pliers.

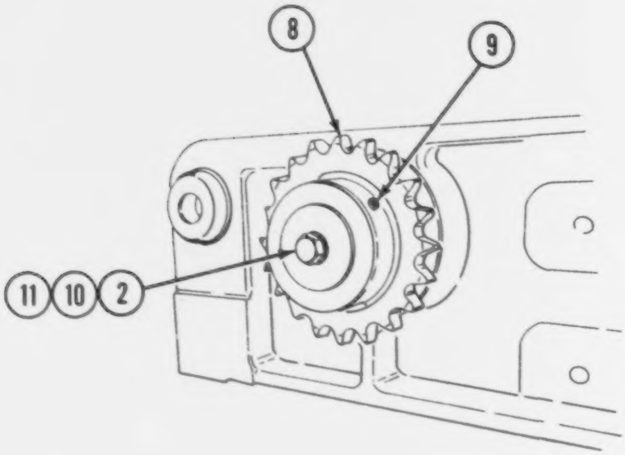


- Install shaft (2) with bearing (5) and bearing (1) in conveyor assembly (4). Use arbor press and shouldered shaft inner radial bearing installation tool.
- Install retaining ring (6) in conveyor assembly (4). Use 3 to 3 1/2 inch ring size retaining ring pliers.



5. INSTALL DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (7) in keyway of shaft (2). Use soft faced hammer.
   - Apply light coat of grease to inside of sprocket (8) and outside of shaft (2).
   - Install and seat sprocket (8) against shoulder of shaft (2). Use soft faced hammer.
   - Install setscrew (9) on sprocket (8). Use 5/32 inch hex key.
   - Install washer (10) and new self-locking screw (11) on shaft (2). Use 3/4 inch socket with ratchet handle. Do not tighten.





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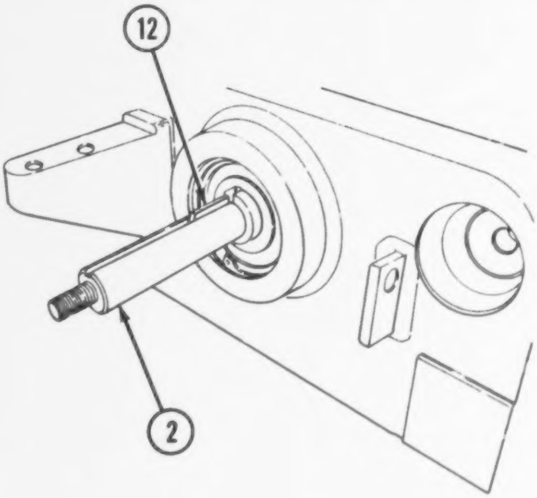
6. INSTALL INNER CONVEYOR DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (12) in keyway of shaft (2). Use soft faced hammer.



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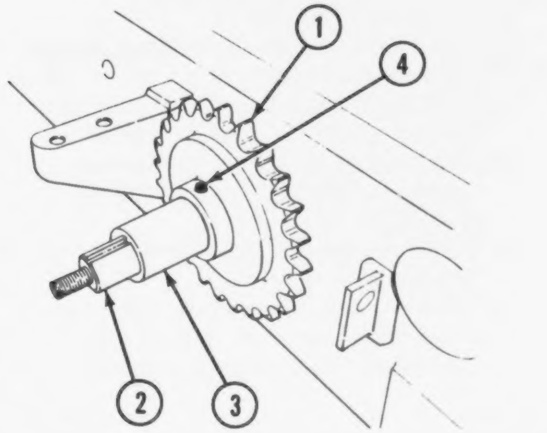
B. REASSEMBLY — Continued

- Install and seat sprocket (1) against shoulder of shaft (2). Use soft faced hammer.
- Install drive spacer (3) on shaft (2).
- Install setscrew (4) on sprocket (1). Use 5/32 inch hex key.



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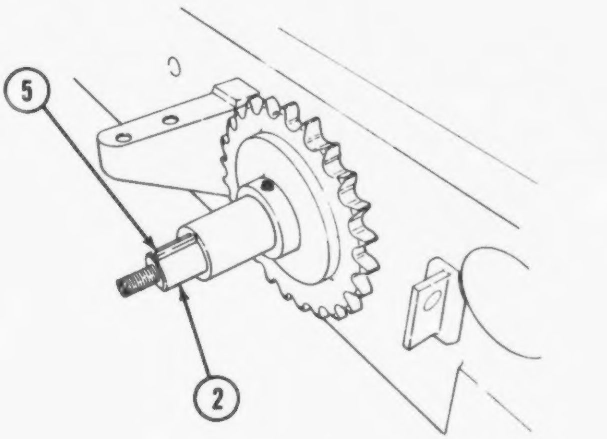
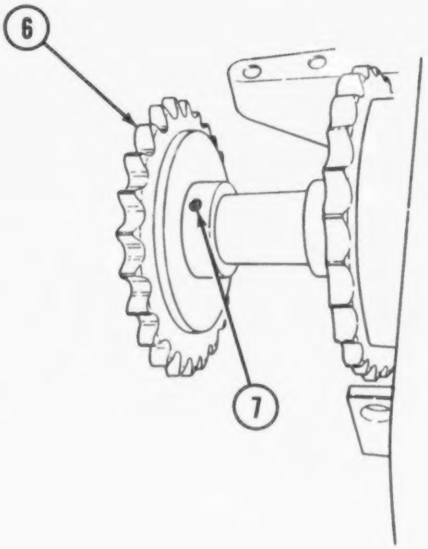
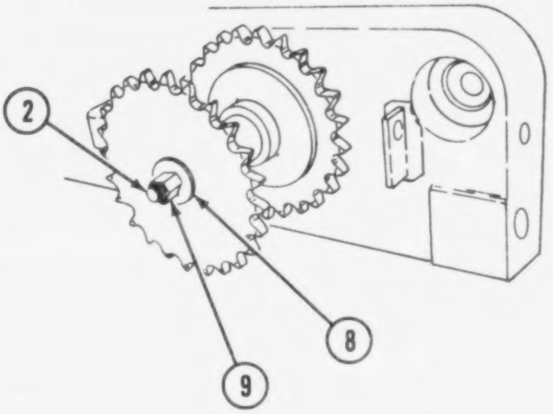
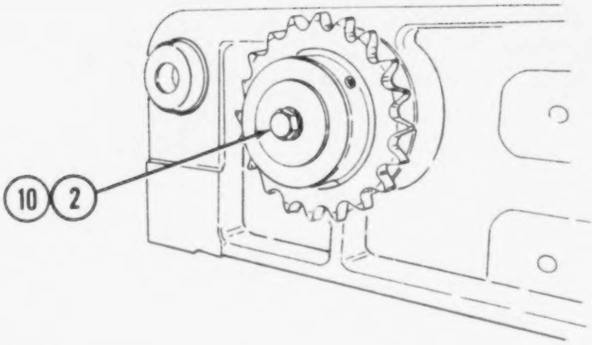
7. INSTALL OUTER CONVEYOR DRIVE SPROCKET ON SHOULDERED SHAFT.
   - Install key (5) in keyway of shaft (2). Use soft faced hammer.
   - Install sprocket (6) on shaft (2). Use soft faced hammer.
   - Install setscrew (7) on sprocket (6). Use 5/32 inch hex key.





- Install washer (8) and new self-locking nut (9) on shaft (2). Use 3/4 inch socket with ratchet handle.
- Tighten self-locking screw (10) on shaft (2). Use 3/4 inch socket with ratchet handle.





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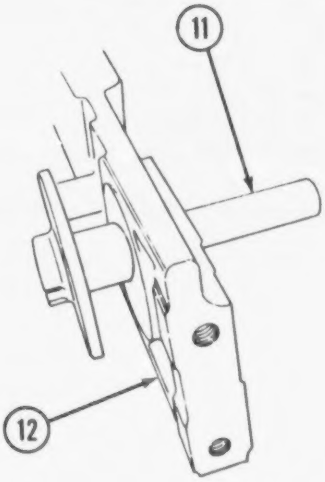
8. INSTALL CONVEYOR IDLER SHAFT ON RIGHT INFEED CONVEYOR ASSEMBLY.
   - Install shaft (11) in conveyor assembly (12). Use soft faced hammer.



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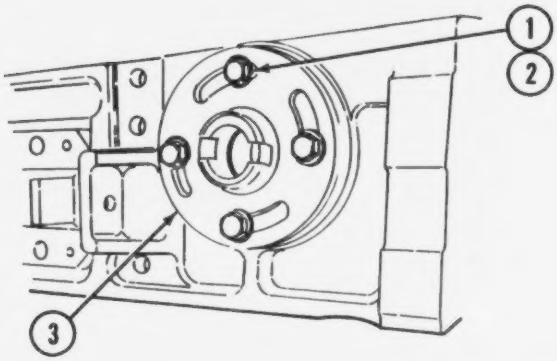
B. REASSEMBLY — Continued

- Install four washers (1) and new self-locking screws (2) on conveyor idler shaft adjusting plate (3). Use 5/8 inch socket with ratchet handle. Do not tighten.



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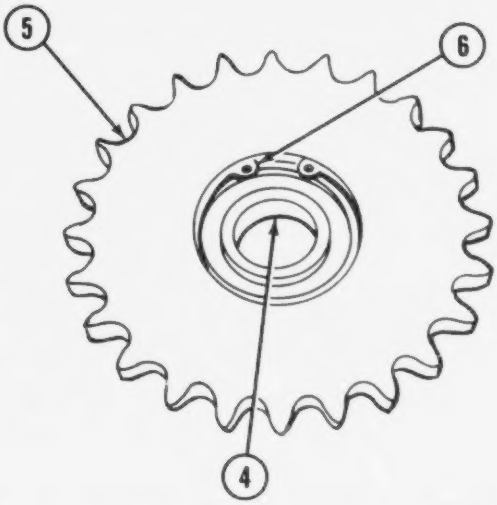
9. INSTALL RADIAL BEARING ON INNER AND OUTER MODIFIED IDLER SPROCKETS.
   - Install bearing (4) on sprocket (5). Use arbor press and inner and outer modified idler sprocket radial bearing installation tool.
   - Install retaining ring (6) on sprocket (5). Use 1 3/4 to 2 inch ring size retaining ring pliers.
   - Repeat above installation steps for other sprocket.



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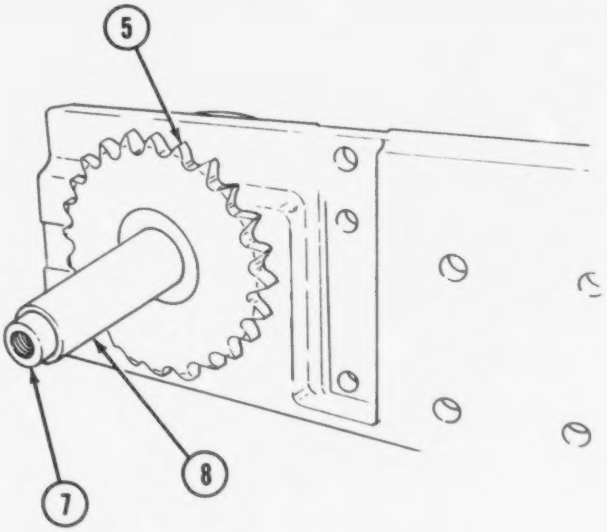
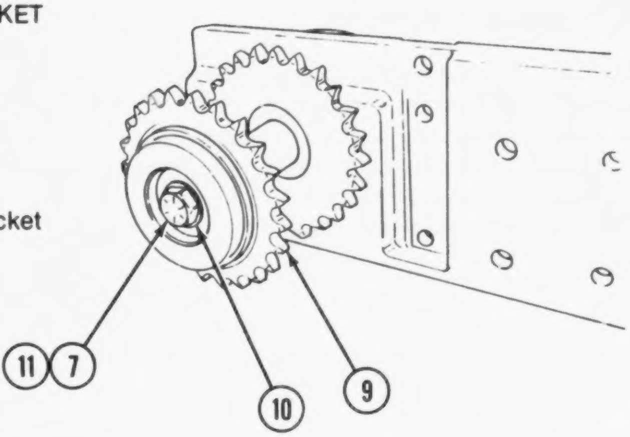
10. INSTALL INNER MODIFIED IDLER SPROCKET ON CONVEYOR IDLER SHAFT.
    - Apply light coat of grease to inside of sprocket (5) and outside of shaft (7).
    - Install and seat sprocket (5) against shoulder of shaft (7). Use soft faced hammer.
    - Install sleeve spacer (8) on shaft (7).



11. INSTALL OUTER MODIFIED IDLER SPROCKET ON CONVEYOR IDLER SHAFT.
    - Apply light coat of grease to inside of sprocket (9) and outside of shaft (7).
    - Install sprocket (9) on shaft (7). Use soft faced hammer.
    - Install washer (10) and new self-locking screw (11) on shaft (7). Use 1 1/8 inch socket with ratchet handle.



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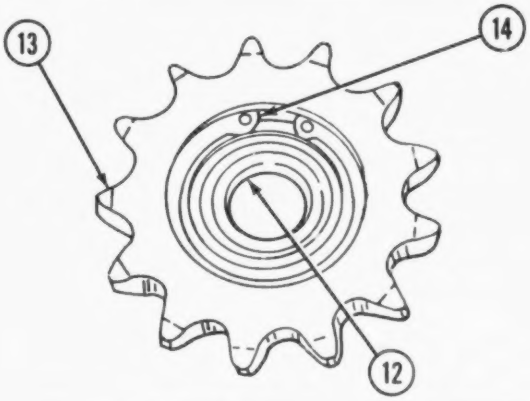
12. INSTALL RADIAL BEARING ON IDLER SPROCKET.
    - Install bearing (12) on sprocket (13). Use arbor press and idler sprocket radial bearing installation tool.
    - Install retaining ring (14) on sprocket (13). Use 1 3/4 to 2 inch ring size retaining ring pliers.



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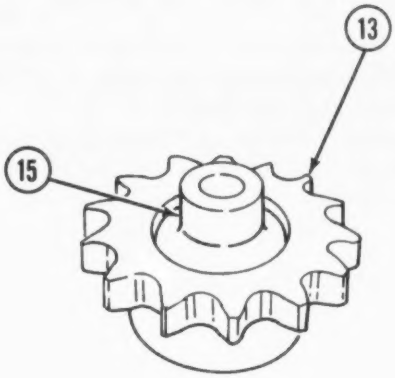
13. INSTALL SHOULDERED SHAFT ON IDLER SPROCKET.
    - Install shaft (15) on sprocket (13). Use arbor press and shouldered shaft installation tool.



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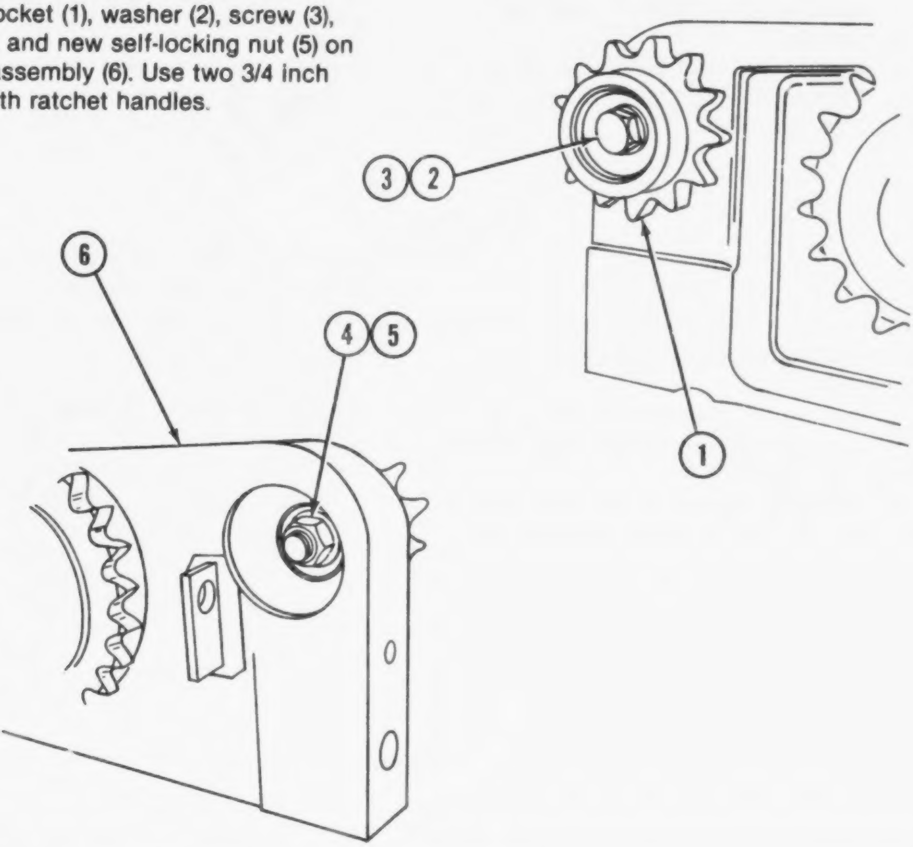
B. REASSEMBLY — Continued

14. INSTALL IDLER SPROCKET ON RIGHT INFEED CONVEYOR ASSEMBLY.
    - Install sprocket (1), washer (2), screw (3), washer (4), and new self-locking nut (5) on conveyor assembly (6). Use two 3/4 inch sockets with ratchet handles.



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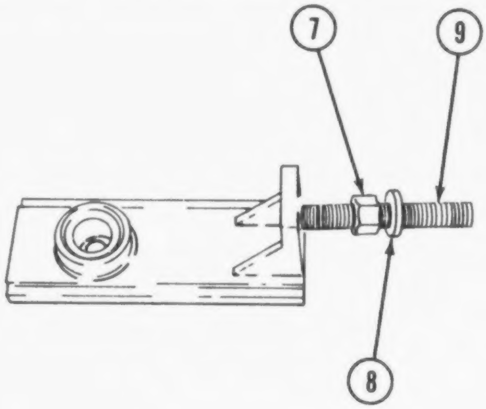
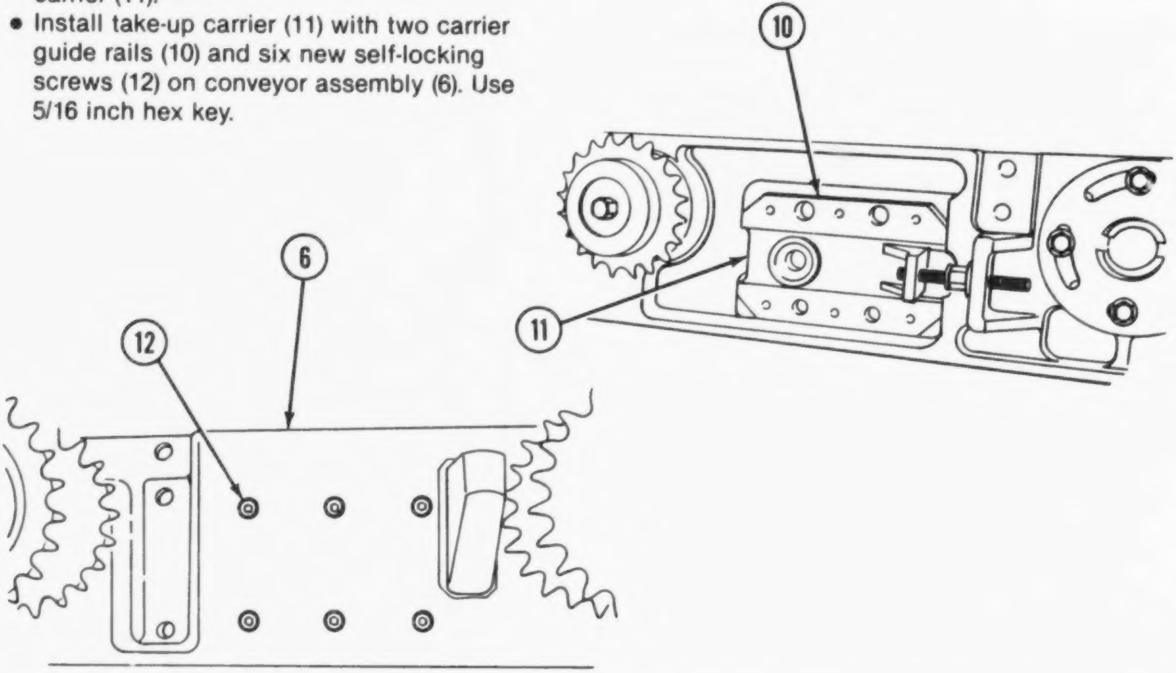
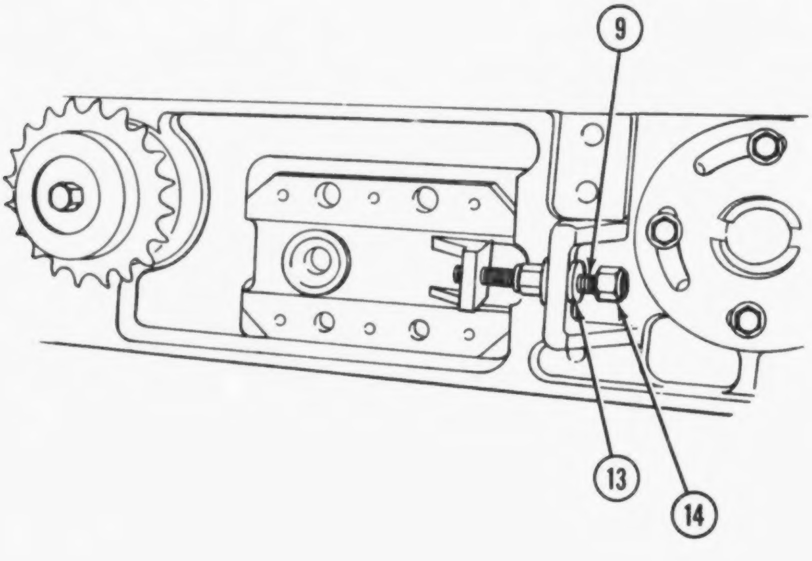
15. INSTALL TAKE-UP CARRIER ON RIGHT INFEED CONVEYOR ASSEMBLY.
    - Install new self-locking nut (7) and washer (8) on take-up carrier stud (9). Use 3/4 inch open end wrench.



- Place two carrier guide rails (10) on take-up carrier (11).
- Install take-up carrier (11) with two carrier guide rails (10) and six new self-locking screws (12) on conveyor assembly (6). Use 5/16 inch hex key.



- Install washer (13) and new self-locking nut (14) on end of threads of take-up carrier stud (9). Use 3/4 inch open end wrench. Do not tighten.



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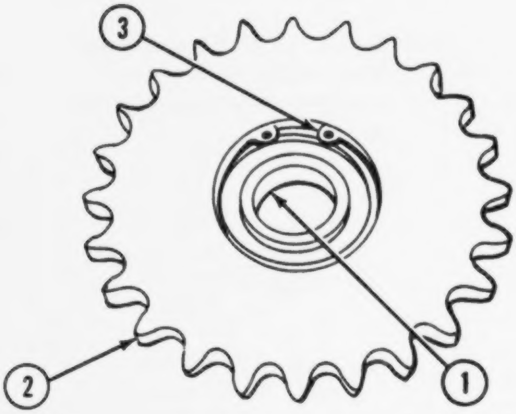
B. REASSEMBLY — Continued

16. INSTALL RADIAL BEARING ON MODIFIED IDLER SPROCKET.
    - Install bearing (1) on sprocket (2). Use arbor press and inner and outer modified idler sprocket installation tool.
    - Install retaining ring (3) on sprocket (2). Use 1 3/4 to 2 inch ring size retaining ring pliers.



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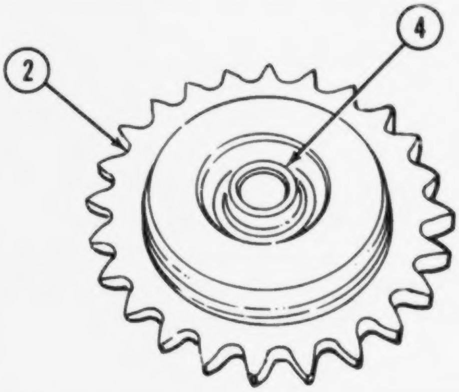
17. INSTALL SHOULDERED SHAFT ON MODIFIED IDLER SPROCKET.
    - Install shaft (4) on sprocket (2). Use arbor press and shouldered shaft installation tool.



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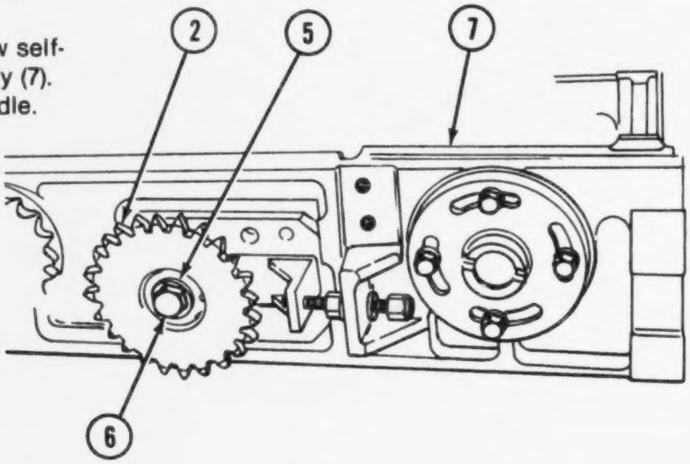
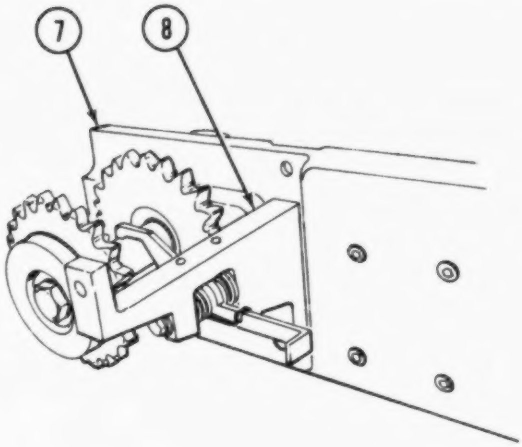
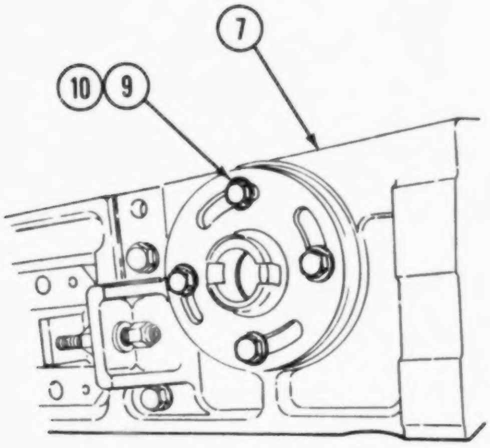
18. INSTALL MODIFIED IDLER SPROCKET ON RIGHT INFEED CONVEYOR ASSEMBLY.
    - Install sprocket (2), washer (5), and new self-locking screw (6) on conveyor assembly (7). Use 1 1/8 inch socket with ratchet handle.



19. INSTALL INPUT SENSOR LEVER ASSEMBLY ON RIGHT INFEED CONVEYOR ASSEMBLY. 1

- Install lever assembly (8), two washers (9), and new self-locking screws (10) on conveyor assembly (7). Use 3/4 inch socket with ratchet handle.





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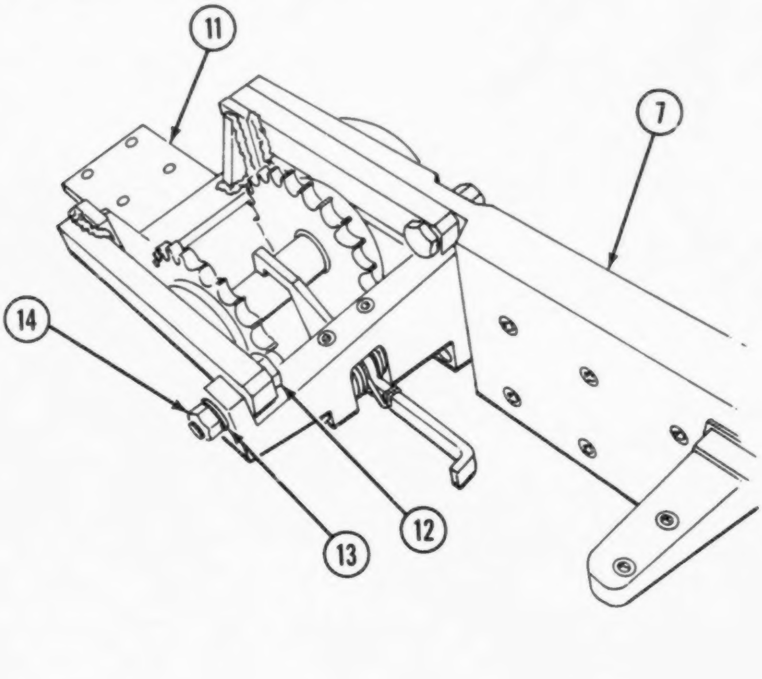
20. INSTALL INFEED CHUTE PIVOT FRAME ON RIGHT INFEED CONVEYOR ASSEMBLY.

- Install pivot frame (11), two screws (12), washers (13), and new self-locking nuts (14) on conveyor assembly (7). Use 1 inch box end wrench and 3/4 inch socket with ratchet handle.



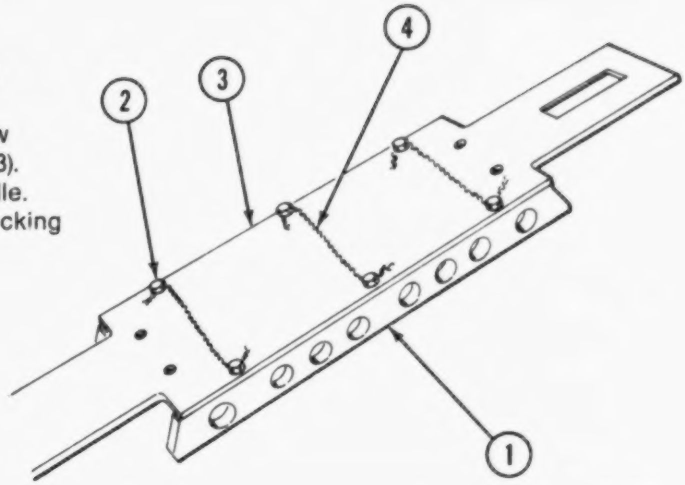
GO TO NEXT PAGE

B. REASSEMBLY — Continued

WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

21. INSTALL TWO CHAIN GUIDES ON MINE GUIDE.
    - Install two chain guides (1) and six new self-locking screws (2) on mine guide (3). Use 7/16 inch socket with ratchet handle.
    - Install new safety wire (4) on six self-locking screws (2). Use slip joint pliers.



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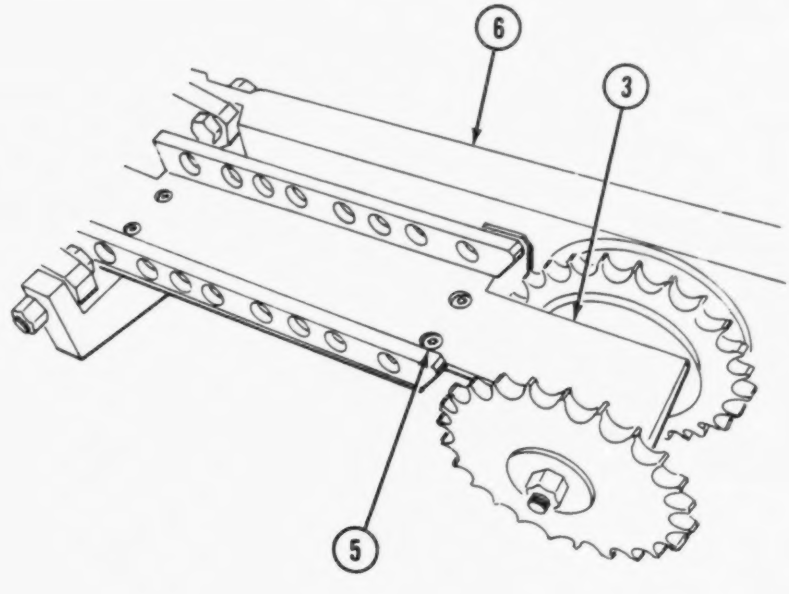
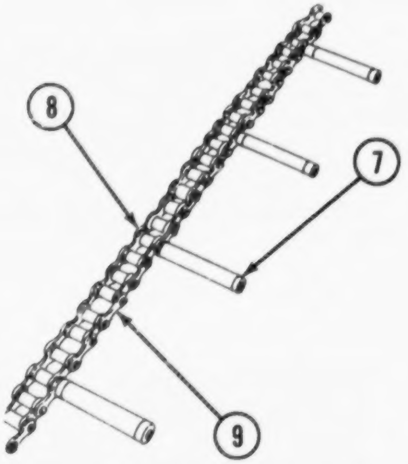
22. INSTALL MINE GUIDE ON RIGHT INFEED CONVEYOR ASSEMBLY.
    - Install mine guide (3) and four new self-locking screws (5) on conveyor assembly (6). Use 5/32 inch hex key.

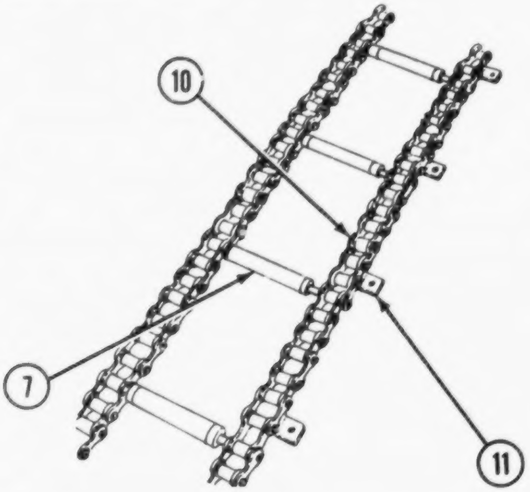


1 23. REASSEMBLE OUTER AND INNER ROLLER CHAINS.

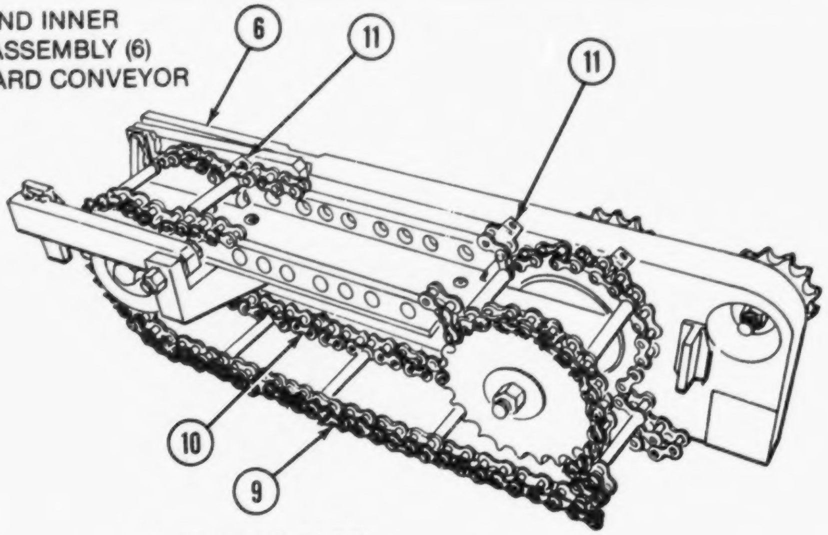
- Install 10 tubular flight bars (7) on 10 extended pin attachment links (8) on outer chain (9).



- Install inner chain (10) with metal tabs (11) down, on 10 tubular flight bars (7).



24. CENTER OUTER CHAIN (9) AND INNER CHAIN (10) ON CONVEYOR ASSEMBLY (6) WITH METAL TABS (11) TOWARD CONVEYOR ASSEMBLY.



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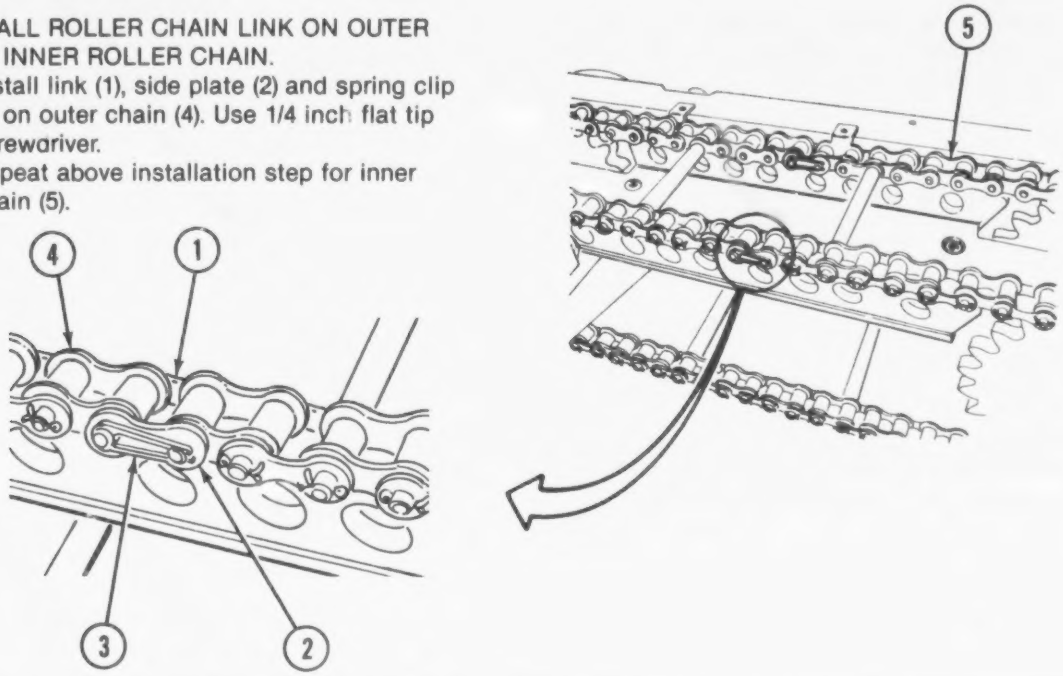
B. REASSEMBLY — Continued

25. INSTALL ROLLER CHAIN LINK ON OUTER AND INNER ROLLER CHAIN.
    - Install link (1), side plate (2) and spring clip (3) on outer chain (4). Use 1/4 inch flat tip screwdriver.
    - Repeat above installation step for inner chain (5).



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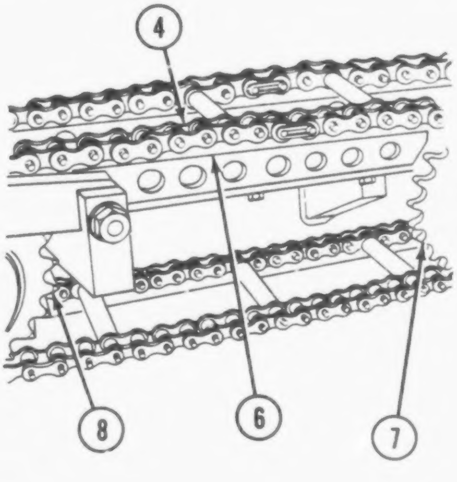
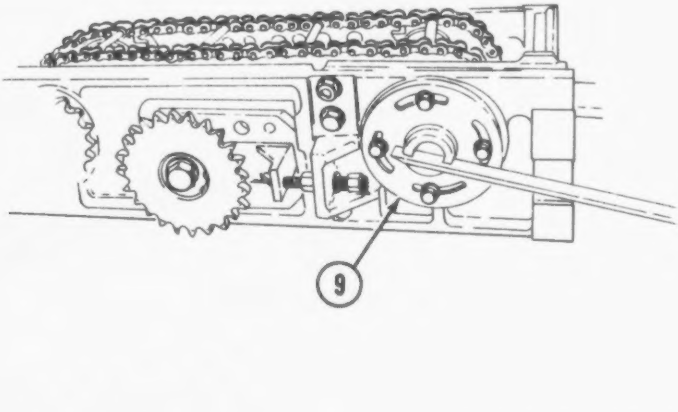
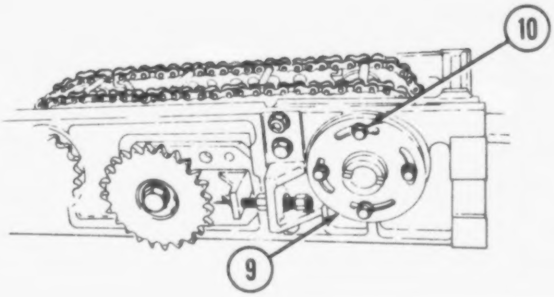
26. SET ROLLER CHAIN DEFLECTION.
    - Measure deflection between outer chain (4) and top of outer chain guide (6) midway between outer conveyor drive sprocket (7) and outer modified idler sprocket (8). Use steel rule. Deflection should be 3/8 in. (9.5 mm).
    - If deflection is not correct, turn conveyor idler shaft adjusting plate (9) right to tighten outer chain (4). Use pry bar.
    - If deflection is correct, tighten four self-locking screws on conveyor idler shaft adjusting plate. (See next step.)





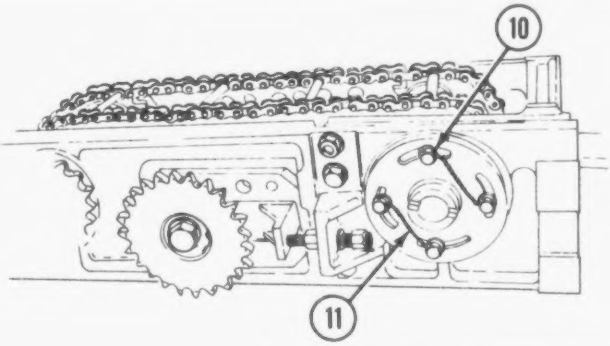
27. TIGHTEN FOUR SELF-LOCKING SCREWS ON CONVEYOR IDLER SHAFT ADJUSTING PLATE.
    - Tighten four screws (10) on conveyor idler shaft adjusting plate (9). Use 5/8 inch socket with ratchet handle.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

28. INSTALL NEW SAFETY WIRE ON FOUR SELF-LOCKING SCREWS.
    - Install new safety wire (11) on four self-locking screws (10). Use slip joint pliers.

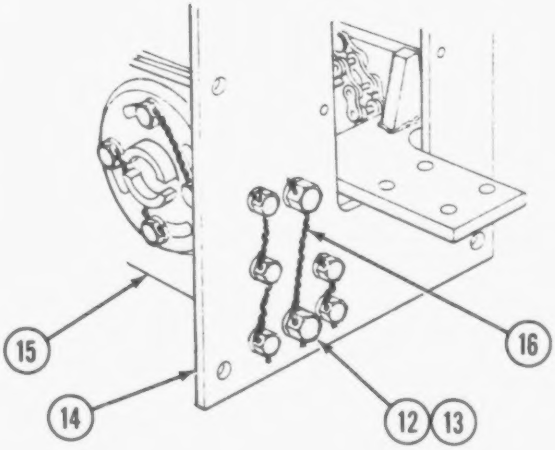


WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

29. INSTALL RIGHT END COVER ASSEMBLY ON RIGHT INFEED CONVEYOR ASSEMBLY.
    - Install two washers (12), new self-locking screws (13), and cover assembly (14) on conveyor assembly (15). Use 15/16 inch socket with ratchet handle.
    - Install new safety wire (16) on two self-locking screws (13). Use slip joint pliers.

30. LUBRICATE RIGHT INFEED CONVEYOR ASSEMBLY. (SEE LO 9-1095-205-12.)



NOTE

FOLLOW-ON MAINTENANCE:

Install Right Infeed Conveyor Proximity Sensors. (See Right Infeed Conveyor Proximity Sensors, Page 7-21.)

Install Right Magazine Internal Wiring Harness. (See Right Magazine Control Wiring Installation, Page 20-55.)

END OF TASK

18-6 LEFT MAGAZINE REEL AND DRUM ASSEMBLY

DESCRIPTION

This task covers: A. DISASSEMBLY (p 18-71)
B. REASSEMBLY (p 18-74)

INITIAL SETUP

Tools and Special Tools:
General mechanic's tool kit
5180-00-177-7033:
No. 2 cross tip screwdriver
9/16 inch socket
Ratchet handle

Materials/Parts:
Self-locking screw (4) 5306-01-163-3122

References:
TM 9-1095-205-10
TM 9-1095-205-20
JUNCTION BOX JB3 ASSEMBLY, Page 6-3
LEFT GEARBOX AND MOTOR ASSEMBLY, Page 6-47
LEFT INFEED CONVEYOR AND LEFT END COVER ASSEMBLIES, Page 6-21

References — Continued:
LEFT MAGAZINE CONDUIT, Page 20-35
LEFT MAGAZINE CONVEYOR DRIVE CHAIN, Page 6-119
LEFT MAGAZINE COVER ASSEMBLY, Page 6-95
LEFT MAGAZINE REEL ASSEMBLY, Page 6-83
LEFT MAIN DRIVE SPROCKET ASSEMBLY, Page 6-103
LEFT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, Page 6-125
LEFT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, Page 6-145
LEFT TAKE-UP SPROCKET GROUP, Page 6-111

OVERVIEW

If replacing reel and drum assembly, perform only disassembly steps 1 through 18 and reassembly steps 6 through 23. If replacing drum weldment, perform entire task.

A. DISASSEMBLY

1. REMOVE LEFT TURNBUCKLE ADJUSTMENT DOOR FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
2. REMOVE LEFT DRIVE SPROCKET ACCESS DOOR FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
3. REMOVE LEFT INFEED CONVEYOR ACCESS DOOR FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
4. REMOVE JUNCTION BOX JB3 ASSEMBLY FROM LEFT MAGAZINE ASSEMBLY. (SEE JUNCTION BOX JB3 ASSEMBLY, PAGE 6-3.)

GO TO NEXT PAGE

A. DISASSEMBLY — Continued

5. REMOVE LEFT MUD GUARD LID AND CATCH FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
6. REMOVE LEFT SIDE GUARD AND HINGED SIDE GUARD FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
7. REMOVE LEFT INFEED CHUTE ASSEMBLY FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
8. UNLOCK LEFT MAGAZINE DRIVE SPROCKET LOCKING CAM. (SEE TM 9-1095-205-10.)
9. OPEN LEFT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)
10. REMOVE LEFT MAGAZINE CONVEYOR DRIVE CHAIN FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAGAZINE CONVEYOR DRIVE CHAIN, PAGE 6-119.)
11. REMOVE LEFT INFEED CONVEYOR ASSEMBLY FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT INFEED CONVEYOR AND LEFT END COVER ASSEMBLIES, PAGE 6-21.)
12. REMOVE LEFT MAGAZINE REEL DRIVE CHAIN FROM LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
13. REMOVE LEFT MAIN DRIVE SPROCKET ASSEMBLY FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAIN DRIVE SPROCKET ASSEMBLY, PAGE 6-103.)
14. REMOVE LEFT TAKE-UP SPROCKET GROUP FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT TAKE-UP SPROCKET GROUP, PAGE 6-111.)

NOTE

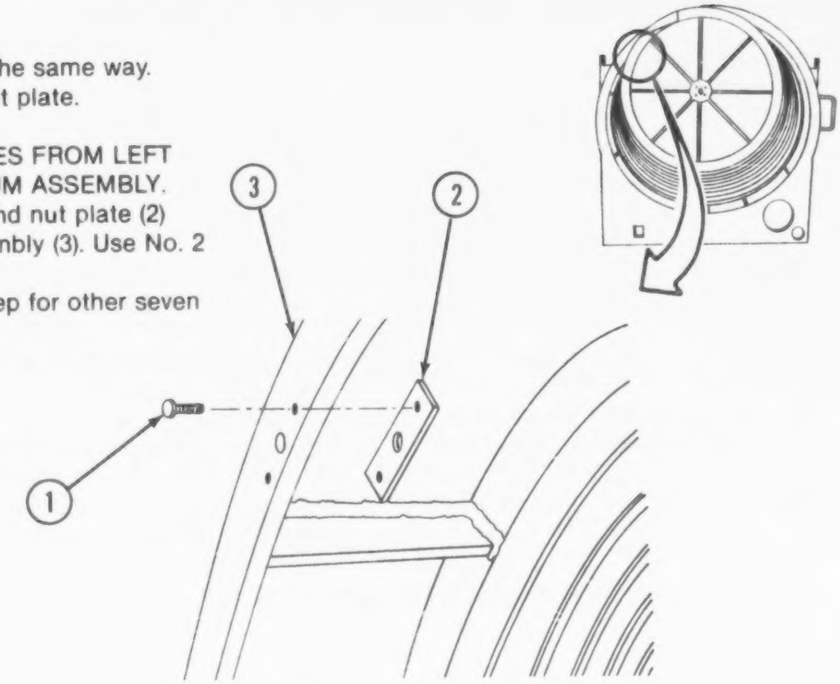
Do not remove motor from gearbox.

15. REMOVE GEARBOX FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT GEARBOX AND MOTOR ASSEMBLY, PAGE 6-47.)
16. REMOVE LEFT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, PAGE 6-145.)
17. REMOVE LEFT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, PAGE 6-125.)
18. REMOVE LEFT MAGAZINE CONDUIT FROM LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAGAZINE CONDUIT, PAGE 20-35.)
19. REMOVE LEFT MAGAZINE COVER ACCESS DOORS FROM LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE COVER ASSEMBLY, PAGE 6-95.)
20. REMOVE LEFT MAGAZINE COVER ASSEMBLY FROM LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE COVER ASSEMBLY, PAGE 6-95.)
21. REMOVE LEFT MAGAZINE REEL ASSEMBLY FROM LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE REEL ASSEMBLY, PAGE 6-83.)

NOTE

All nut plates are removed the same way. Step 22 shows upper left nut plate.

22. REMOVE EIGHT NUT PLATES FROM LEFT MAGAZINE REEL AND DRUM ASSEMBLY.
    - Remove two screws (1) and nut plate (2) from reel and drum assembly (3). Use No. 2 cross tip screwdriver.
    - Repeat above removal step for other seven nut plates.



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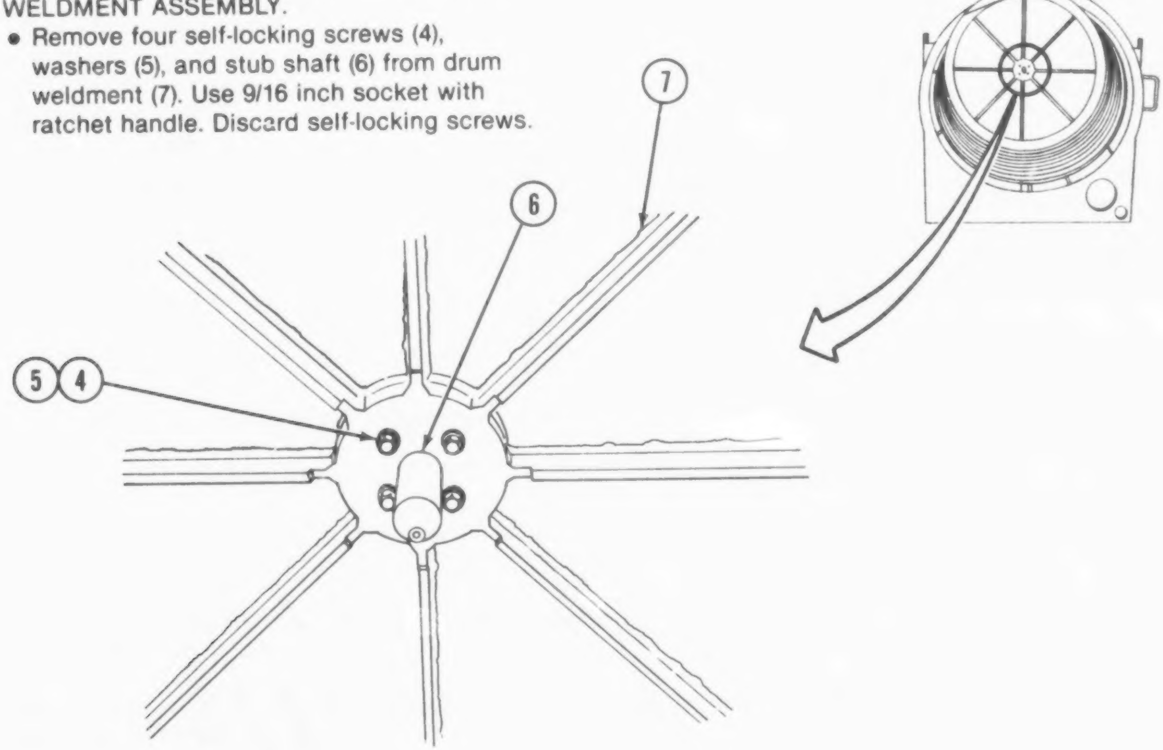
23. REMOVE REEL STUB SHAFT FROM DRUM WELDMENT ASSEMBLY.
    - Remove four self-locking screws (4), washers (5), and stub shaft (6) from drum weldment (7). Use 9/16 inch socket with ratchet handle. Discard self-locking screws.



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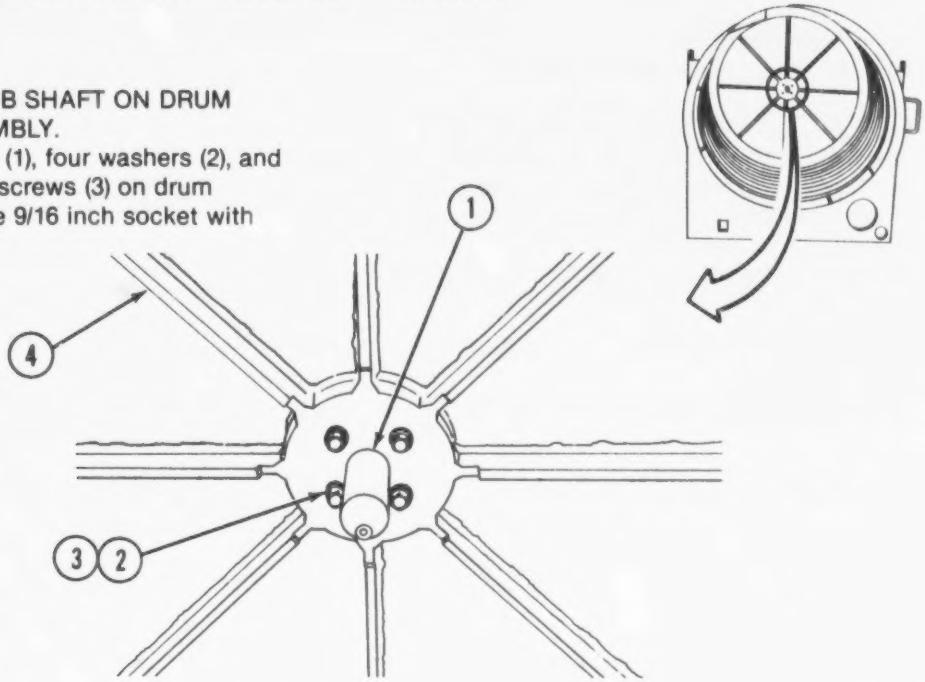
18-6 LEFT MAGAZINE REEL AND DRUM ASSEMBLY — Continued

B. REASSEMBLY

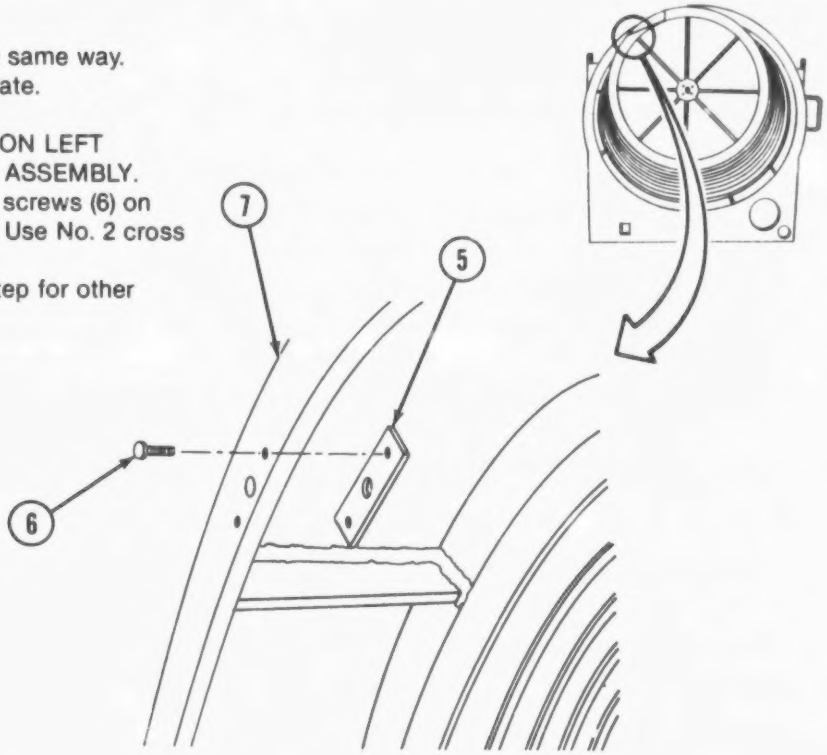
1. INSTALL REEL STUB SHAFT ON DRUM WELDMENT ASSEMBLY.
   - Install stub shaft (1), four washers (2), and new self-locking screws (3) on drum weldment (4). Use 9/16 inch socket with ratchet handle.



NOTE

All nut plates are installed the same way. Step 2 shows upper left nut plate.

2. INSTALL EIGHT NUT PLATES ON LEFT MAGAZINE REEL AND DRUM ASSEMBLY.
   - Install nut plate (5) and two screws (6) on reel and drum assembly (7). Use No. 2 cross tip screwdriver.
   - Repeat above installation step for other seven nut plates.



3. INSTALL LEFT MAGAZINE REEL ASSEMBLY ON LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE REEL ASSEMBLY, PAGE 6-83.)

4. INSTALL LEFT MAGAZINE COVER ASSEMBLY ON LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE COVER ASSEMBLY, PAGE 6-95.)

5. INSTALL LEFT MAGAZINE COVER ACCESS DOORS ON LEFT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE LEFT MAGAZINE COVER ASSEMBLY, PAGE 6-95.)

6. INSTALL LEFT MAGAZINE CONDUIT ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAGAZINE CONDUIT, PAGE 20-35.)

7. OPEN LEFT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)

8. INSTALL LEFT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, PAGE 6-125.)

9. INSTALL LEFT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, PAGE 6-145.)

10. INSTALL GEARBOX ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT GEARBOX AND MOTOR ASSEMBLY, PAGE 6-47.)

11. INSTALL LEFT TAKE-UP SPROCKET GROUP ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT TAKE-UP SPROCKET GROUP, PAGE 6-111.)

12. INSTALL LEFT MAIN DRIVE SPROCKET ASSEMBLY ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAIN DRIVE SPROCKET ASSEMBLY, PAGE 6-103.)

13. INSTALL LEFT MAGAZINE REEL DRIVE CHAIN ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

14. INSTALL LEFT INFEED CONVEYOR ASSEMBLY ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT INFEED CONVEYOR AND LEFT END COVER ASSEMBLIES, PAGE 6-21.)

15. INSTALL LEFT MAGAZINE CONVEYOR DRIVE CHAIN ON LEFT MAGAZINE ASSEMBLY. (SEE LEFT MAGAZINE CONVEYOR DRIVE CHAIN, PAGE 6-119.)

16. CLOSE LEFT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)

17. LOCK LEFT MAGAZINE DRIVE SPROCKET LOCKING CAM. (SEE TM 9-1095-205-10.)

18. INSTALL LEFT INFEED CHUTE ASSEMBLY ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

19. INSTALL LEFT SIDE GUARD AND HINGED SIDE GUARD ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

20. INSTALL LEFT MUD GUARD LID AND CATCH ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

21. INSTALL JUNCTION BOX JB3 ASSEMBLY ON LEFT MAGAZINE ASSEMBLY. (SEE JUNCTION BOX JB3 ASSEMBLY, PAGE 6-3.)

GO TO NEXT PAGE

B. REASSEMBLY — Continued

22. INSTALL LEFT INFEED CONVEYOR ACCESS DOOR ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

23. INSTALL LEFT DRIVE SPROCKET ACCESS DOOR ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

24. INSTALL LEFT TURNBUCKLE ADJUSTMENT DOOR ON LEFT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

END OF TASK

18-7 RIGHT MAGAZINE REEL AND DRUM ASSEMBLY

DESCRIPTION

This task covers: A. DISASSEMBLY (p 18-77)
B. REASSEMBLY (p 18-80)

INITIAL SETUP

Tools and Special Tools:
General mechanic's tool kit
5180-00-177-7033:
No. 2 cross tip screwdriver
9/16 inch socket
Ratchet handle

Materials/Parts:
Self-locking screw (4) 5306-01-163-3122

References:
TM 9-1095-205-10
TM 9-1095-205-20
RIGHT GEARBOX AND MOTOR ASSEMBLY, Page 7-31
RIGHT INFEED CONVEYOR AND RIGHT END COVER ASSEMBLIES, Page 7-3
RIGHT MAGAZINE CONDUIT, Page 20-83

References — Continued:
RIGHT MAGAZINE CONVEYOR DRIVE CHAIN, Page 7-107
RIGHT MAGAZINE COVER ASSEMBLY, Page 7-83
RIGHT MAGAZINE REEL ASSEMBLY, Page 7-71
RIGHT MAIN DRIVE SPROCKET ASSEMBLY, Page 7-91
RIGHT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, Page 7-113
RIGHT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, Page 7-135
RIGHT TAKE-UP SPROCKET GROUP, Page 7-99

OVERVIEW

If replacing reel and drum assembly, perform only disassembly steps 1 through 17 and reassembly steps 6 through 23. If replacing drum weldment, perform entire task.

A. DISASSEMBLY

1. REMOVE RIGHT TURNBUCKLE ADJUSTMENT DOOR FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
2. REMOVE RIGHT DRIVE SPROCKET ACCESS DOOR FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
3. REMOVE RIGHT INFEED CONVEYOR ACCESS DOOR FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)
4. REMOVE RIGHT MUD GUARD LID AND CATCH FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

GO TO NEXT PAGE

A. DISASSEMBLY — Continued

5. REMOVE RIGHT SIDE GUARD AND HINGED SIDE GUARD FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

6. REMOVE RIGHT INFEED CHUTE ASSEMBLY FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

7. UNLOCK RIGHT MAGAZINE DRIVE SPROCKET LOCKING CAM. (SEE TM 9-1095-205-10.)

8. OPEN RIGHT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)

9. REMOVE RIGHT MAGAZINE CONVEYOR DRIVE CHAIN FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAGAZINE CONVEYOR DRIVE CHAIN, PAGE 7-107.)

10. REMOVE RIGHT INFEED CONVEYOR ASSEMBLY FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT INFEED CONVEYOR AND RIGHT END COVER ASSEMBLIES, PAGE 7-3.)

11. REMOVE RIGHT MAGAZINE REEL DRIVE CHAIN FROM RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

12. REMOVE RIGHT MAIN DRIVE SPROCKET ASSEMBLY FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAIN DRIVE SPROCKET ASSEMBLY, PAGE 7-91.)

13. REMOVE RIGHT TAKE-UP SPROCKET GROUP FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT TAKE-UP SPROCKET GROUP, PAGE 7-99.)

NOTE

Do not remove motor from gearbox.

14. REMOVE GEARBOX FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT GEARBOX AND MOTOR ASSEMBLY, PAGE 7-31.)

15. REMOVE RIGHT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, PAGE 7-135.)

16. REMOVE RIGHT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, PAGE 7-113.)

17. REMOVE RIGHT MAGAZINE CONDUIT FROM RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAGAZINE CONDUIT, PAGE 20-83.)

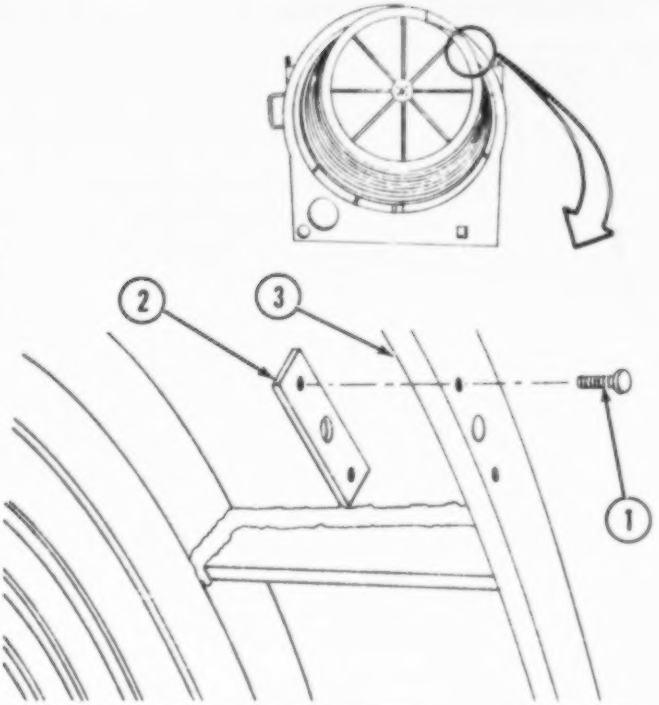
18. REMOVE RIGHT MAGAZINE COVER ACCESS DOORS FROM RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE COVER ASSEMBLY, PAGE 7-83.)

19. REMOVE RIGHT MAGAZINE COVER ASSEMBLY FROM RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE COVER ASSEMBLY, PAGE 7-83.)

20. REMOVE RIGHT MAGAZINE REEL ASSEMBLY FROM RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE REEL ASSEMBLY, PAGE 7-71.)

NOTE

All nut plates are removed the same way. Step 21 shows upper right nut plate.



21. REMOVE EIGHT NUT PLATES FROM RIGHT MAGAZINE REEL AND DRUM ASSEMBLY.
    - Remove two screws (1) and nut plate (2) from reel and drum assembly (3). Use No. 2 cross tip screwdriver.
    - Repeat above removal step for other seven nut plates.

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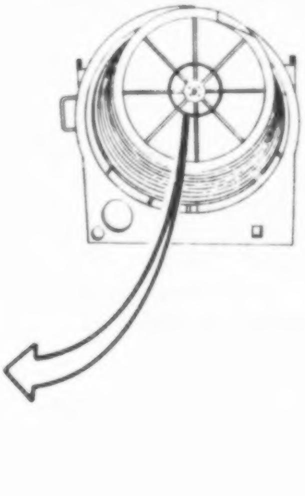
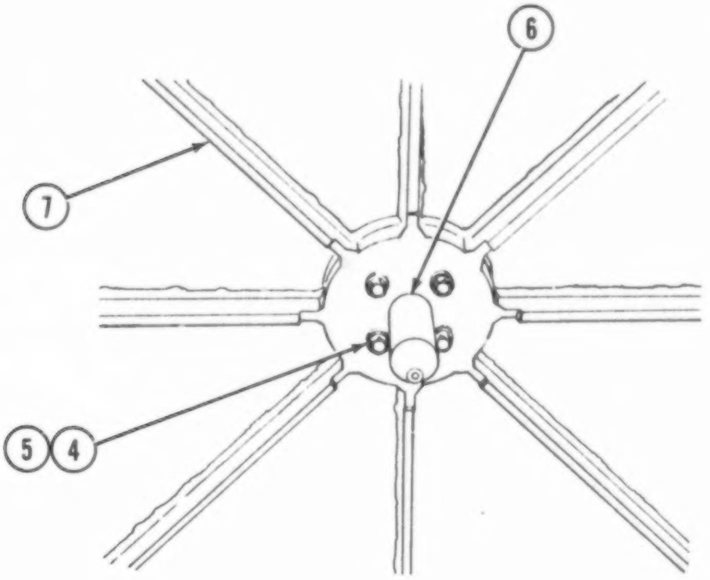
22. REMOVE REEL STUB SHAFT FROM DRUM WELDMENT ASSEMBLY.
    - Remove four self-locking screws (4), washers (5), and stub shaft (6) from drum weldment (7). Use 9/16 inch socket with ratchet handle. Discard self-locking screws.





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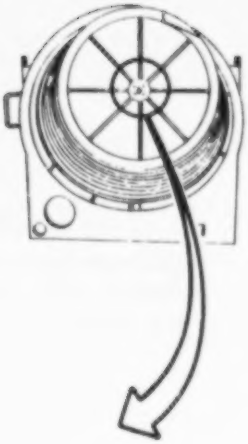
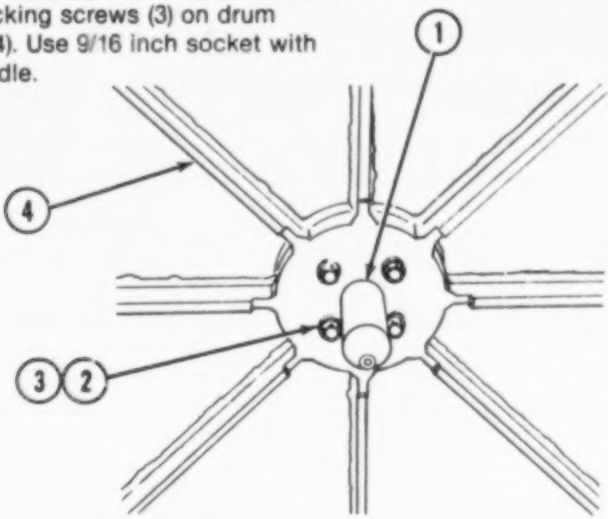
18-7 RIGHT MAGAZINE REEL AND DRUM ASSEMBLY — Continued

B. REASSEMBLY

1. INSTALL REEL STUB SHAFT ON DRUM WELDMENT ASSEMBLY.
   - Install stub shaft (1), four washers (2), and new self-locking screws (3) on drum weldment (4). Use 9/16 inch socket with ratchet handle.

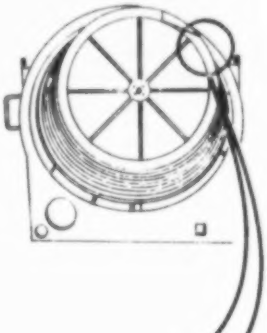


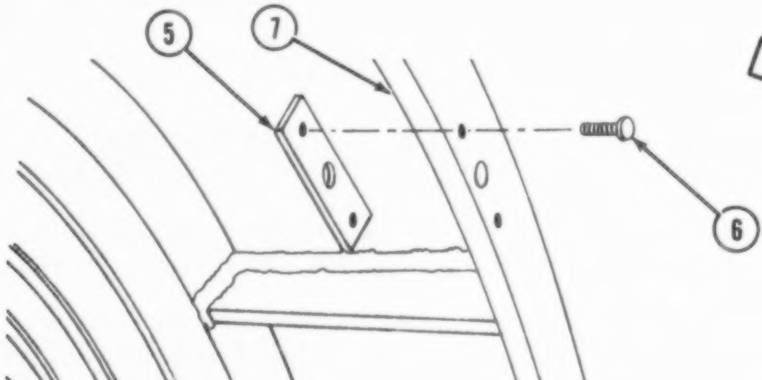


NOTE

All nut plates are installed the same way. Step 2 shows upper right nut plate.

2. INSTALL EIGHT NUT PLATES ON RIGHT MAGAZINE REEL AND DRUM ASSEMBLY.
   - Install nut plate (5) and two screws (6) on reel and drum assembly (7). Use No. 2 cross tip screwdriver.
   - Repeat above installation step for other seven nut plates.





3. INSTALL RIGHT MAGAZINE REEL ASSEMBLY ON RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE REEL ASSEMBLY, PAGE 7-71.)

4. INSTALL RIGHT MAGAZINE COVER ASSEMBLY ON RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE COVER ASSEMBLY, PAGE 7-83.)

5. INSTALL RIGHT MAGAZINE COVER ACCESS DOORS ON RIGHT MAGAZINE REEL AND DRUM ASSEMBLY. (SEE RIGHT MAGAZINE COVER ASSEMBLY, PAGE 7-83.)

6. INSTALL RIGHT MAGAZINE CONDUIT ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAGAZINE CONDUIT, PAGE 20-83.)

7. OPEN RIGHT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)

8. INSTALL RIGHT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT OUTBOARD AND INBOARD WELDMENT GUIDE RAILS, PAGE 7-113.)

9. INSTALL RIGHT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT REEL DRIVE CHAIN TAKE-UP TURNBUCKLE, PAGE 7-135.)

10. INSTALL GEARBOX ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT GEARBOX AND MOTOR ASSEMBLY, PAGE 7-31.)

11. INSTALL RIGHT TAKE-UP SPROCKET GROUP ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT TAKE-UP SPROCKET GROUP, PAGE 7-99.)

12. INSTALL RIGHT MAIN DRIVE SPROCKET ASSEMBLY ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAIN DRIVE SPROCKET ASSEMBLY, PAGE 7-91.)

13. INSTALL RIGHT MAGAZINE REEL DRIVE CHAIN ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

14. INSTALL RIGHT INFEED CONVEYOR ASSEMBLY ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT INFEED CONVEYOR AND RIGHT END COVER ASSEMBLIES, PAGE 7-3.)

15. INSTALL RIGHT MAGAZINE CONVEYOR DRIVE CHAIN ON RIGHT MAGAZINE ASSEMBLY. (SEE RIGHT MAGAZINE CONVEYOR DRIVE CHAIN, PAGE 7-107.)

16. CLOSE RIGHT MAGAZINE ACCESS DOORS. (SEE TM 9-1095-205-10.)

17. LOCK RIGHT MAGAZINE DRIVE SPROCKET LOCKING CAM. (SEE TM 9-1095-205-10.)

18. INSTALL RIGHT INFEED CHUTE ASSEMBLY ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

19. INSTALL RIGHT SIDE GUARD AND HINGED SIDE GUARD ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

20. INSTALL RIGHT MUD GUARD LID AND CATCH ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

GO TO NEXT PAGE

B. REASSEMBLY — Continued

21. INSTALL RIGHT INFEED CONVEYOR ACCESS DOOR ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

22. INSTALL RIGHT DRIVE SPROCKET ACCESS DOOR ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

23. INSTALL RIGHT TURNBUCKLE ADJUSTMENT DOOR ON RIGHT MAGAZINE ASSEMBLY. (SEE TM 9-1095-205-20.)

END OF TASK

CHAPTER 19

DIESEL POWERED HYDRAULIC PUMPING UNIT (GENERAL SUPPORT)

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

19-1 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

19-2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools are authorized for the M128 Ground Vehicle Mine Dispenser.

19-3 REPAIR PARTS

Repair parts are listed and illustrated in the repair parts and special tools list TM 9-1095-205-34P, covering direct support and general support maintenance for this equipment.

Section II. MAINTENANCE PROCEDURES

19-4 DIESEL ENGINE DISASSEMBLY AND REASSEMBLY

DESCRIPTION

This task covers: A DISASSEMBLY (p 19-4)
B. REASSEMBLY (p 19-34)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - 1/2 inch open end wrench
  - 7/16 inch open end wrench
  - 9/16 inch open end wrench
  - 5/8 inch open end wrench
  - 7/8 inch open end wrench
  - 1 inch open end wrench
  - 7/16 inch box end wrench
  - 9/16 inch box end wrench
  - 5/8 inch box end wrench
  - 3/4 inch box end wrench
  - 1/2 inch socket
  - 9/16 inch socket
  - 5/8 inch socket
  - 7/16 inch socket
  - 3/4 inch socket
  - 7/8 inch socket
  - 15/16 inch socket
  - Hinged handle
  - Ratchet handle
  - 5 inch extension
  - Putty knife
  - 1/4 inch flat tip screwdriver
  - 10 inch adjustable wrench
  - Pry bar
  - Diagonal pliers
  - Round nose pliers
  - Slip joint pliers
  - 1/4 inch drive pin punch
  - 1/8 inch drive pin punch
- Run-in dynamometer 4910-00-912-3961
- Engine and transmission sling 4900-00-944-4915
- 1000 pound capacity hoist 3950-00-292-9879
- Measuring tape 5120-00-287-3335
- Mechanical puller 5120-00-443-1596
- Soft faced hammer 5120-00-903-8553
- Wire brush 7920-00-291-5815
- Machinist's scriber 5120-00-221-7063
- Cap and plug set 5340-00-450-5718

Tools and Special Tools — Continued:

- Goggles 4240-00-269-7912
- 3/8 inch drive socket wrench set 5120-00-322-6231:
  - 7/16 inch socket
  - 9/16 inch socket
  - 5/8 inch socket
  - 3/4 inch socket
  - 5 inch extension
- 3/8 inch drive torque wrench 5120-00-541-3001
- 1/2 inch to 3/4 inch socket wrench adapter 5120-00-227-8088
- 1/2 inch drive torque wrench 5120-00-640-6364
- 3/4 inch drive 1 5/8 inch socket 5120-00-199-7765
- 3/4 inch drive hinged handle 5120-00-221-7959
- 1 inch drive 1 5/8 inch socket 5120-00-189-7958
- 1/2 inch drive 9/16 inch torque wrench adapter 5120-00-977-7421
- 1 inch drive impact wrench 5130-00-889-9020
- Dial indicator scale 6670-00-254-4634
- 7/16 inch box and open end box wrench 5120-00-895-9568
- 3/4 inch box and open end box wrench 5120-00-895-9573
- 3/8 inch drive 9/16 inch crowfoot 5120-00-037-5268
- 3/8 inch drive 1/2 inch crowfoot 5120-00-184-8384
- Plier wrench 5120-00-277-4244
- Hand oiler 4930-00-275-7900
- Arbor press 3444-00-449-7297
- 1/2 inch drive 7/8 inch deep socket 5120-00-243-7342

Materials/Parts:

- Strap wrench: 1 1/2 inch strap, 7 inch capacity
- Brass rod, , Appendix C
- Lock washer (4) 5310-00-010-2230
- Lock washer 5310-00-584-5272
- Lock washer (12) 5310-00-012-0384

GO TO NEXT PAGE

INITIAL SETUP — Continued

Materials/Parts — Continued:

Lock washer (17) 5310-00-209-0820
Lock washer (4) 5310-00-637-9541
Lock washer (28265)
Lock washer (28265)
Lock washer (2) 5310-01-056-1382
Lock washer (28265)
Lock washer (4) 5310-01-167-3549
Idler bearing (2) 3110-00-596-3415
Lock washer (8) 5310-01-086-4918
Lock washer 5310-00-917-0963
Lock washer (20) 5310-01-133-7241
Injector sleeve washer 5310-00-167-9009
Retaining nut (2) (28265) 207418A
Gasket (8) 5365-00-891-8931
Gasket (2) 5330-00-971-5607
Gasket (4) 5330-00-171-7034
Gasket 5330-00-034-4978
Gasket 5330-00-630-3563
Gasket 2815-00-790-2659
Gasket (2) 5330-00-893-7799
Gasket 5330-00-678-3821
Cover gasket 5330-00-506-3975
Gasket 5330-00-649-8445
Lubricating oil, Item 16, Appendix B
Copper gasket (4) 5330-00-530-2523
Plate gasket 5330-00-231-0283

Materials/Parts — Continued:

Oil seal 5330-00-598-8962
End seal (2) 5330-00-649-8437
Crankshaft seal 5330-01-028-7654
Dowel 2930-00-215-4065
Dowel 3120-00-492-9096
Adhesive cement, Item 1, Appendix B
Sealing compound, Item 25, Appendix B
Plastic sheet, Item 20, Appendix B
Solvent, Item 28, Appendix B
Rags, Item 22, Appendix B
Masking tape, Item 19, Appendix B
Safety wire, Item 23, Appendix B

Personnel Required:

Mechanic
Helper

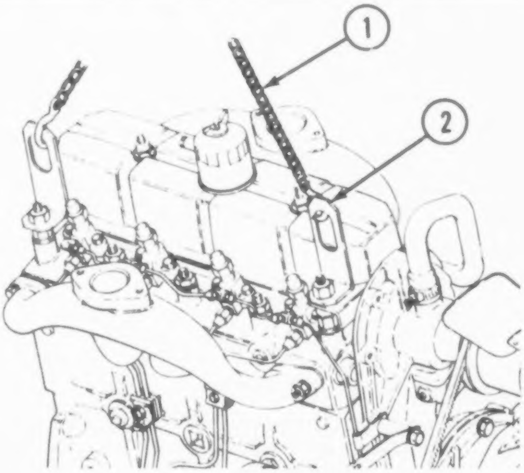
References:

LO 9-1095-205-12
TM 9-1095-205-20
TM 9-4910-393-12
BELL HOUSING, Page 19-83
FLYWHEEL AND RING GEAR, Page 19-77
INTAKE MANIFOLD, Page 15-21
ROCKER ARM ASSEMBLY, Page 15-199

A. DISASSEMBLY

1. REMOVE BELL HOUSING FROM ENGINE. (SEE BELL HOUSING, PAGE 19-83.)

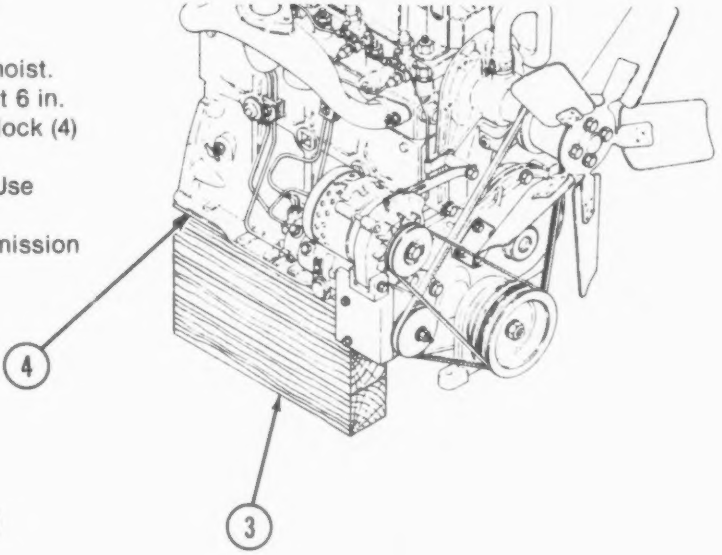
2. ATTACH ENGINE AND TRANSMISSION SLING (1) TO TWO LIFTING EYES (2).

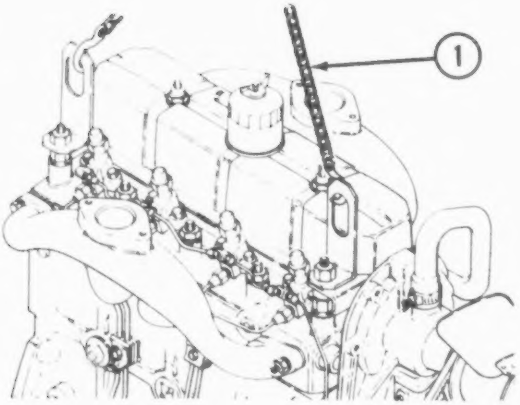


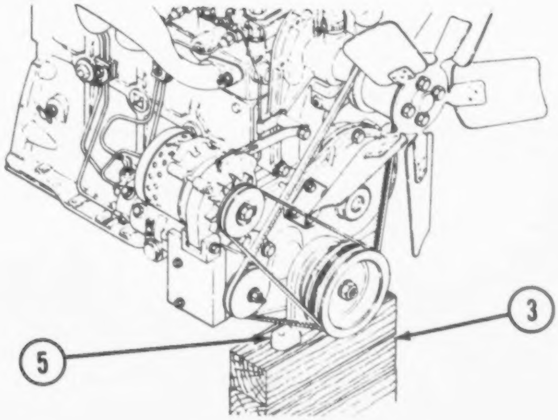
WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

3. REPOSITION WOOD BLOCKS UNDER ENGINE.
   - Lift engine off wood blocks (3). Use hoist.
   - Reposition wood blocks (3) under last 6 in. (15.3 cm) at rear of engine cylinder block (4) and front engine support (5).
   - Lower engine onto wood blocks (3). Use hoist. Use helper.
   - Release tension in engine and transmission sling (1).







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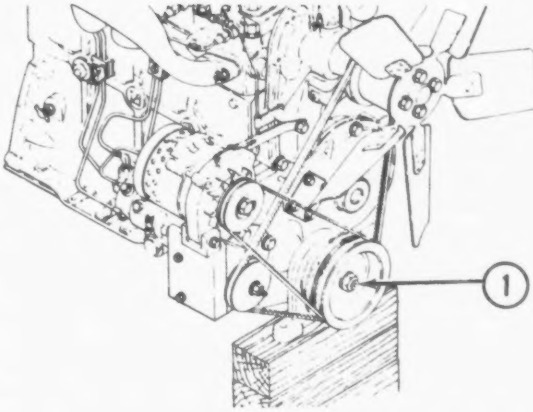
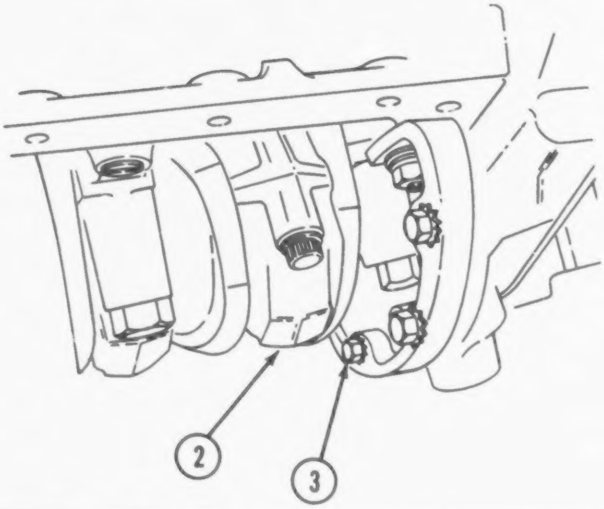
A. DISASSEMBLY — Continued

4. CLEAR ENGINE CRANKSHAFT FROM FRONT ADAPTER.
   - Turn crankshaft nut (1) to right until crankshaft (2) is clear of four adapter mounting screws (3). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.





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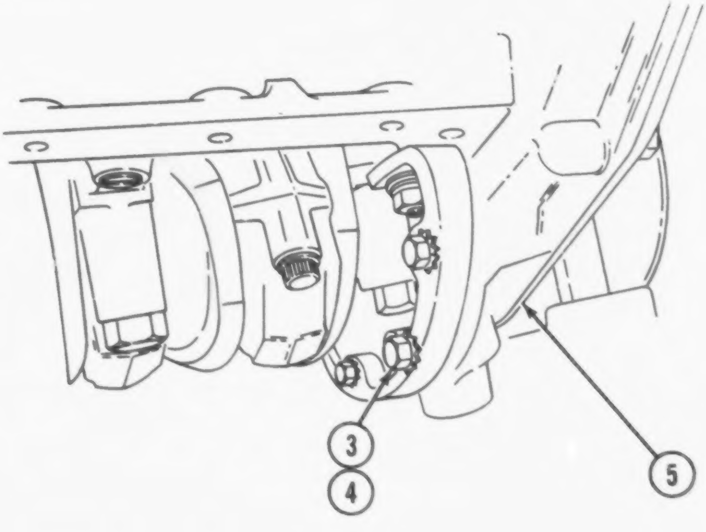
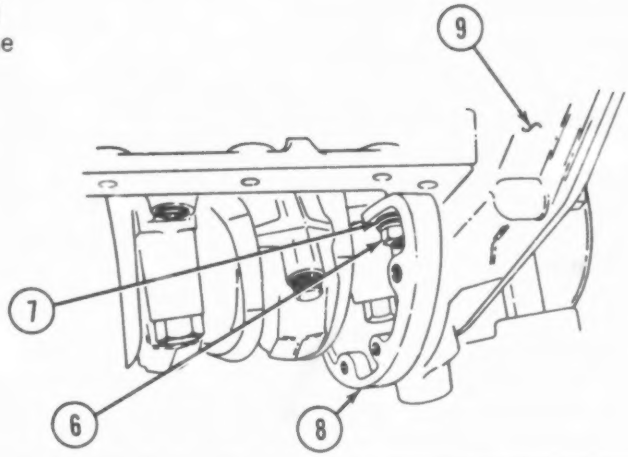
5. REMOVE FRONT ADAPTER FROM ENGINE GEAR HOUSING.
   - Remove four adapter mounting screws (3) and lock washers (4) from gear housing (5). Use 9/16 inch open end wrench. Discard lock washers.



- Remove two nuts (6), lock washers (7), and front adapter (8) from cylinder block (9). Use 1/2 inch open end wrench. Discard lock washers.



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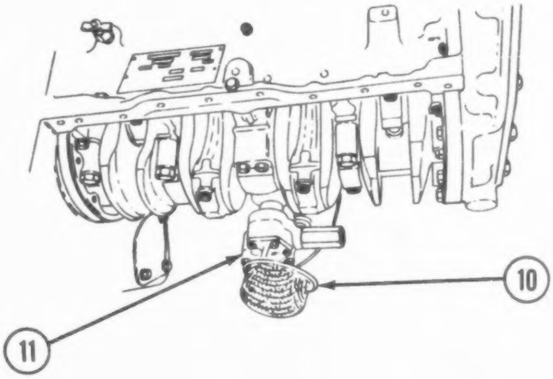
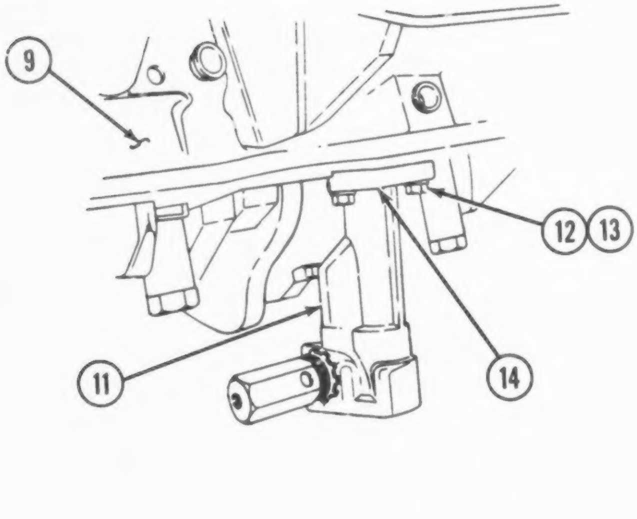
6. REMOVE ROTARY OIL PUMP ASSEMBLY FROM ENGINE CYLINDER BLOCK.
   - Turn pump strainer (10) to left, and remove from oil pump assembly (11).
   - Remove two screws (12) and lock washers (13) from oil pump assembly mounting flange (14). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers.
   - Turn oil pump assembly (11) to left, and remove from cylinder block (9).





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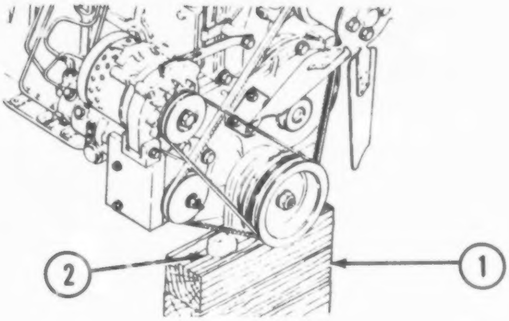
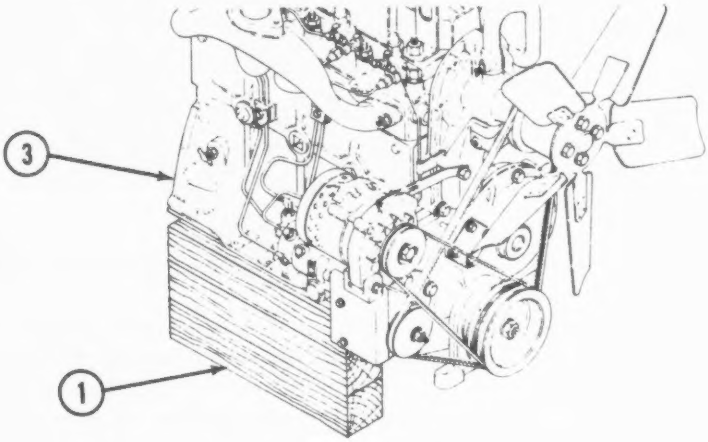
A. DISASSEMBLY — Continued



WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

7. REPOSITION WOOD BLOCKS UNDER ENGINE CYLINDER BLOCK.
   - Lift engine. Use hoist.
   - Remove wood blocks (1) from under front engine support (2).
   - Reposition wood blocks (1) under sides of cylinder block (3).
   - Lower engine onto wood blocks (1). Use hoist. Use helper.



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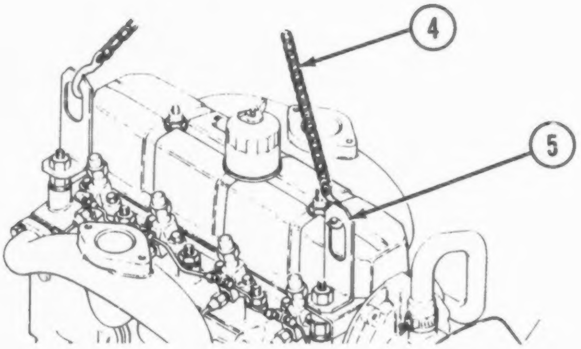
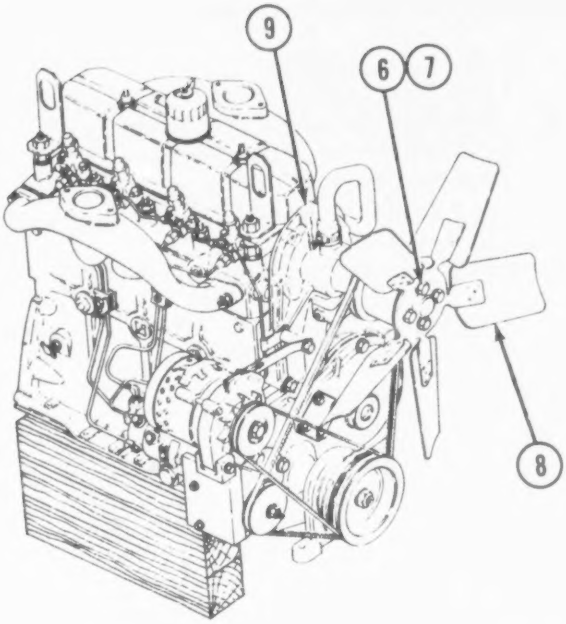
8. REMOVE ENGINE AND TRANSMISSION SLING (4) FROM TWO LIFTING EYES (5) ON ENGINE.



9. REMOVE FAN FROM WATER PUMP ASSEMBLY.
   - Remove four screws (6), lock washers (7), and fan (8) from water pump assembly (9). Use 1/2 inch socket with ratchet handle. Discard lock washers.



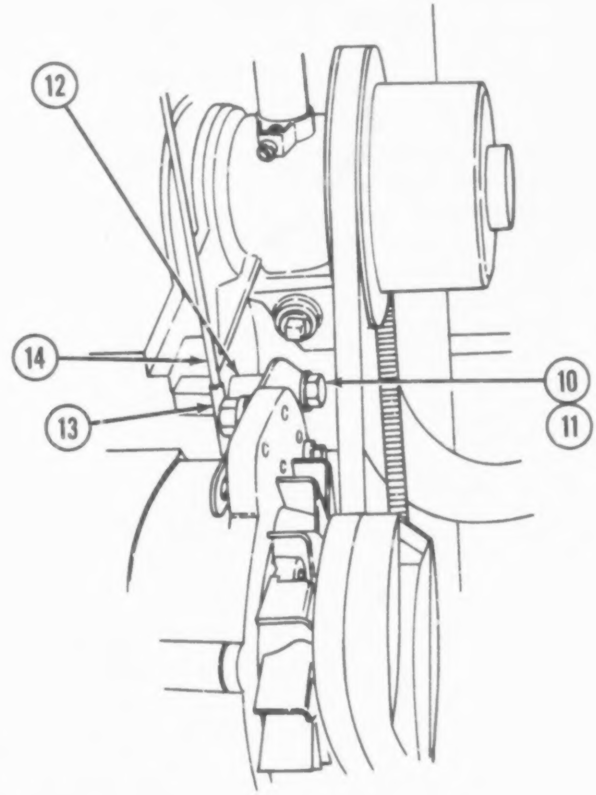
WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

NOTE

Alternator adjusting strap stays attached to alternator.

10. REMOVE FRONT LEAKOFF TUBE FROM ENGINE.
    - Remove screw (10), lock washer (11), spacer (12), and clamp (13) with tube (14) from engine. Use 5/8 inch socket with ratchet handle. Discard lock washer.



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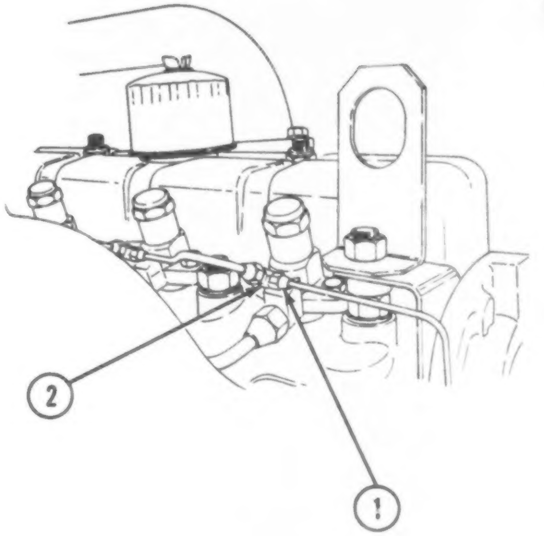
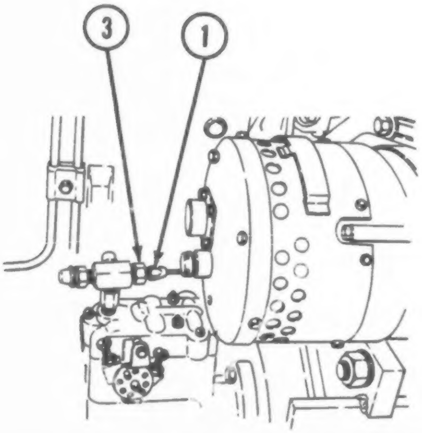
A. DISASSEMBLY — Continued

- Tag and mark tube.
- Disconnect tube (1) from fitting (2). Use 7/16 inch box and open end box wrench.
- Disconnect tube (1) from adapter (3), and remove tube from engine. Use 7/16 inch box and open end box and 7/16 inch open end wrenches.
- Plug tube, and cap adapter and fitting.





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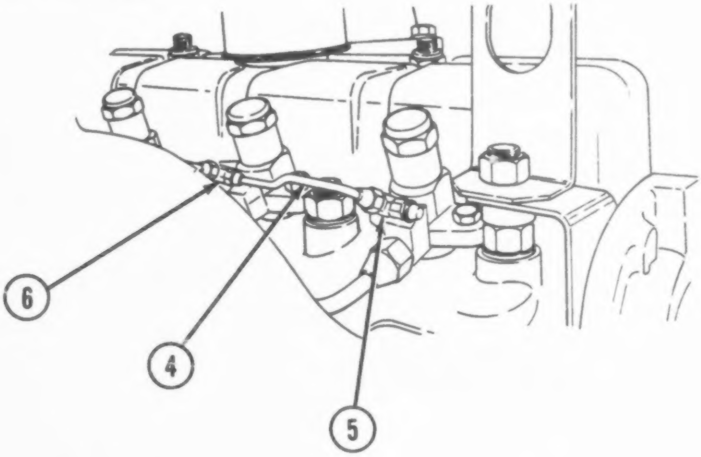
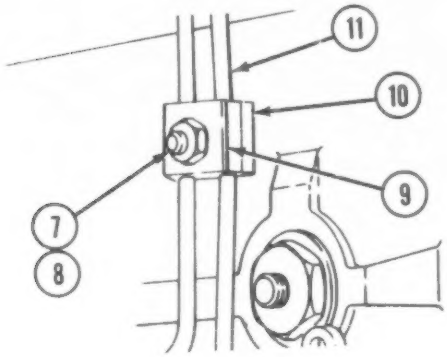
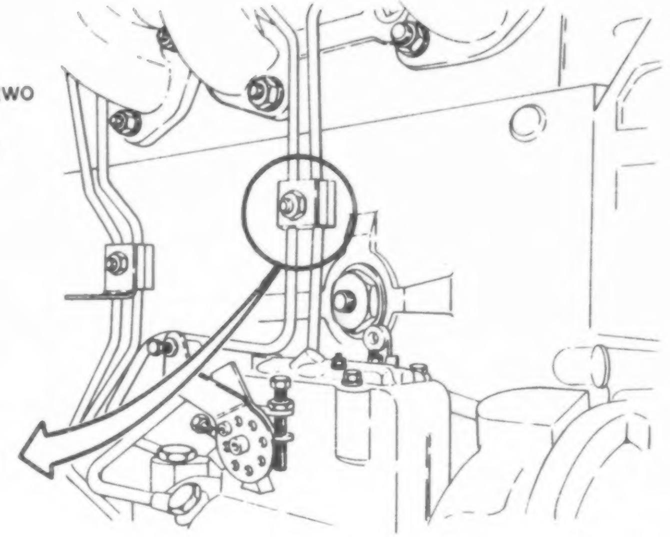
11. REMOVE THREE TOP LEAKOFF TUBES FROM ENGINE.
    - Tag and mark tubes.
    - Disconnect tube (4) from fitting (5). Use 7/16 inch box and open end box wrench.
    - Disconnect tube (4) from fitting (6), and remove tube from engine. Use 7/16 inch box and open end box wrench.
    - Plug tube, and cap fittings.
    - Repeat above removal steps for other two tubes.

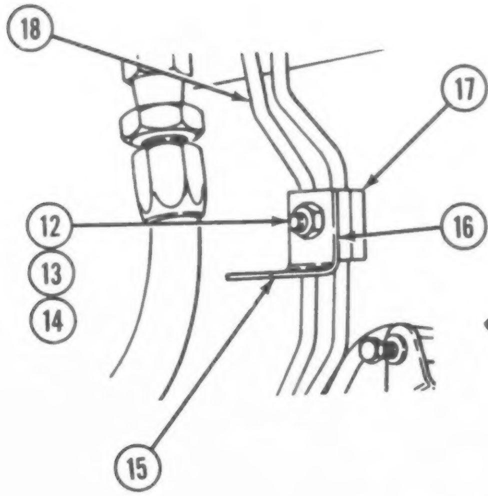


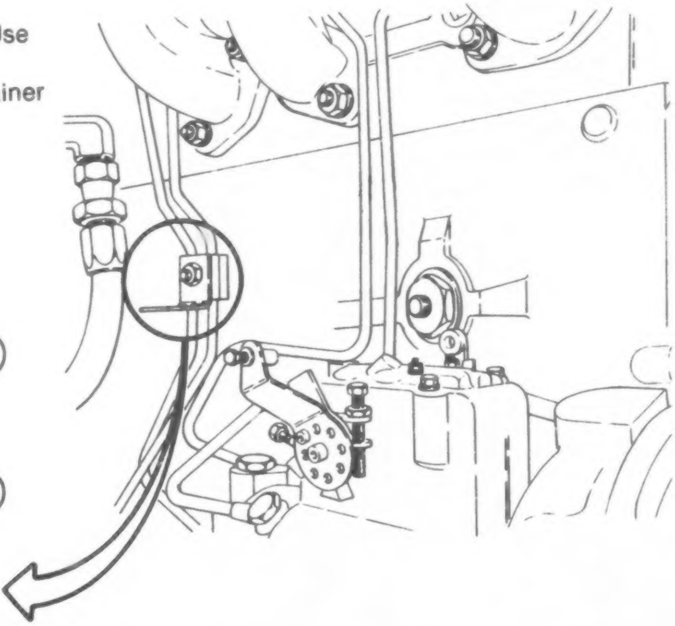
12. REMOVE FOUR FUEL INJECTION TUBES FROM ENGINE.
    - Tag and mark tubes.
    - Remove retainer nut (7), screw (8), two retainers (9), and two cushions (10) from two front tubes (11). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle. Discard retainer nut.





- Remove retainer nut (12), washer (13), screw (14), bracket (15), two retainers (16), and cushions (17) from two rear tubes (18). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle. Discard retainer nut.





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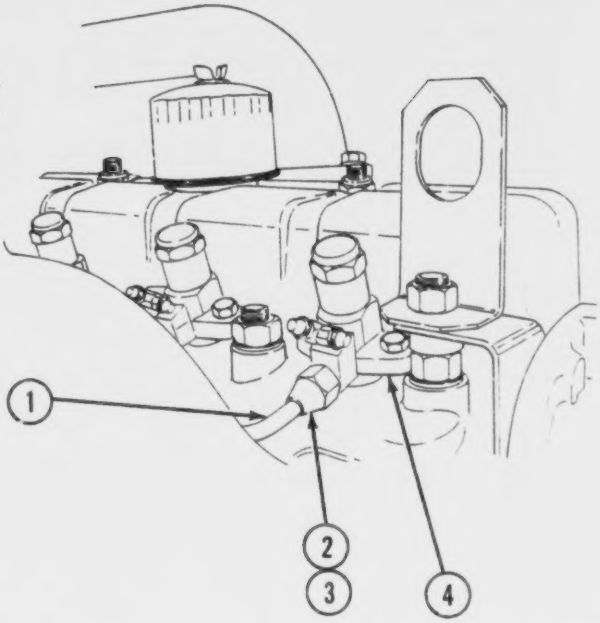
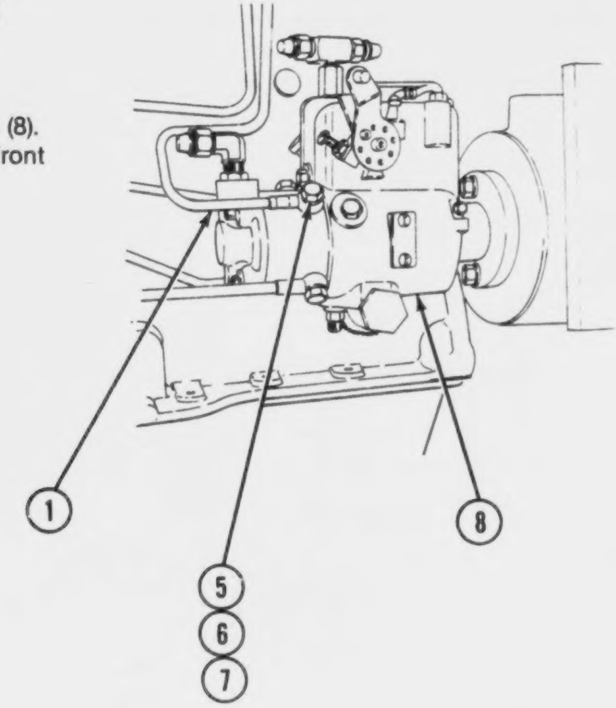
A. DISASSEMBLY — Continued

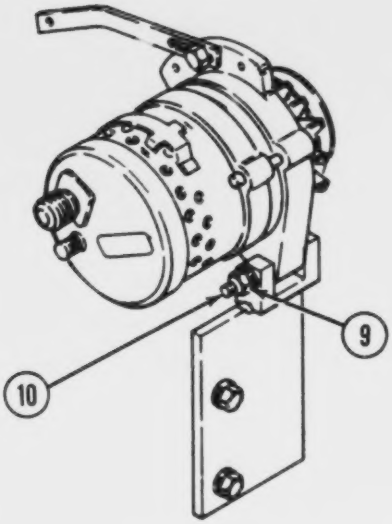
- Disconnect front tube (1) with tube nut (2) and ferrule (3) from fuel nozzle assembly (4). Use 3/4 inch box and open end box wrench.
- Plug front tube, and cap fuel nozzle assembly.
- Repeat above removal steps for other front tube and two rear tubes.

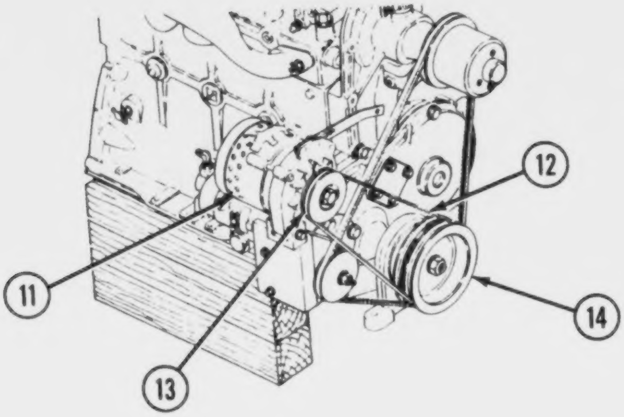


- Remove screw (5), gasket (6), front tube (1), and gasket (7) from fuel injection pump (8). Use 9/16 inch box end wrench. Discard gaskets.
- Remove front tube (1) from engine.
- Plug front tube.
- Install screw (5) on fuel injection pump (8).
- Repeat above removal steps for other front tube and two rear tubes.



13. REMOVE ALTERNATOR DRIVE BELT FROM ENGINE.
    - Loosen nut (9) on screw (10). Use 3/4 inch box end wrench and 3/4 inch socket with 5 inch extension and ratchet handle.
    - Swing alternator (11) towards engine.
    - Remove belt (12) from alternator pulley (13) and crankshaft pulley (14).





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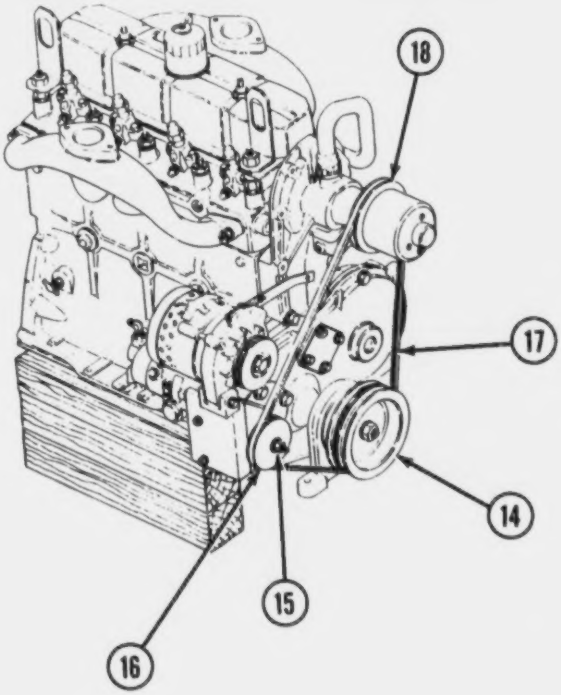
14. REMOVE FAN BELT FROM ENGINE.
    - Loosen nut (15). Use 3/4 inch box end wrench.
    - Slide idler pulley (16) towards engine.
    - Remove fan belt (17) from idler pulley (16), fan pulley (18), and crankshaft pulley (14).



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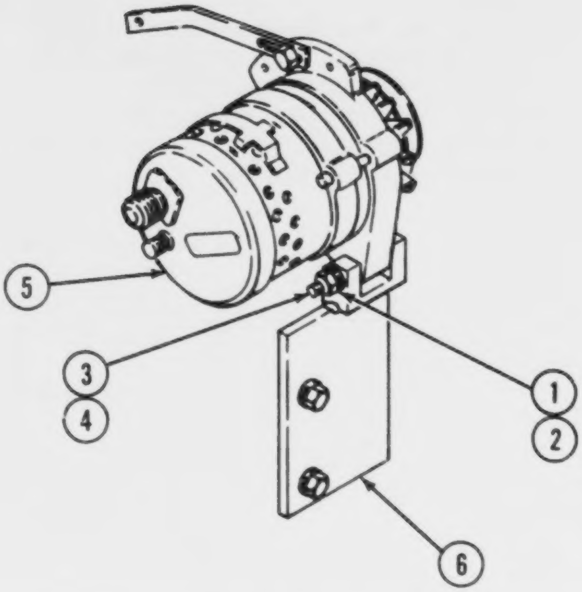
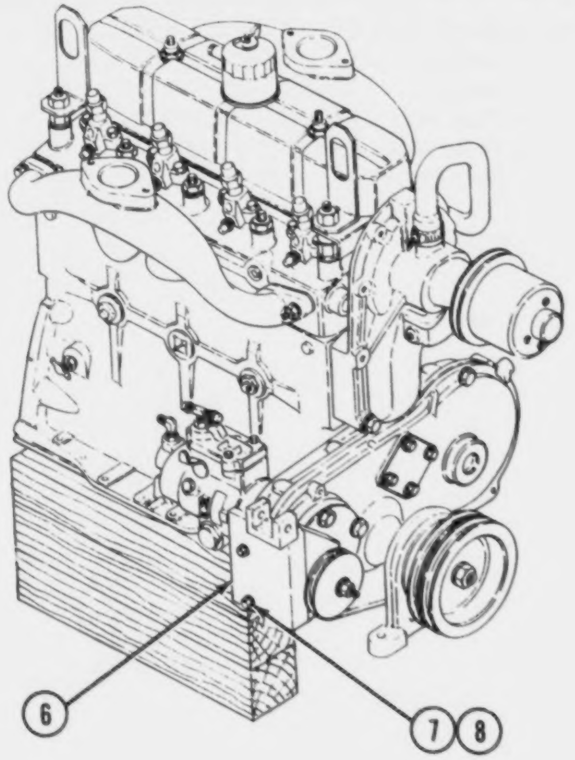
A. DISASSEMBLY — Continued

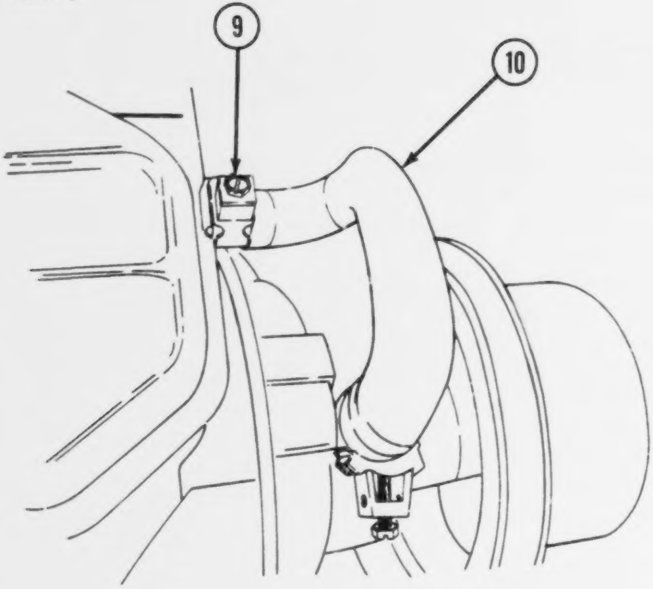
15. REMOVE ALTERNATOR WITH ADJUSTING STRAP FROM BRACKET ASSEMBLY.
    - Remove nut (1), lock washer (2), screw (3), washer (4), and alternator (5) from bracket assembly (6). Use 3/4 inch box end wrench and 3/4 inch socket with ratchet handle. Discard lock washer.



16. REMOVE BRACKET ASSEMBLY FROM ENGINE.
    - Remove two screws (7), lock washers (8), and bracket assembly (6) from engine. Use 3/4 inch socket with ratchet handle. Discard lock washers.



17. REMOVE BYPASS HOSE FROM ENGINE.
    - Loosen two clamp screws (9), and remove hose (10) from engine. Use 1/4 inch flat tip screwdriver.



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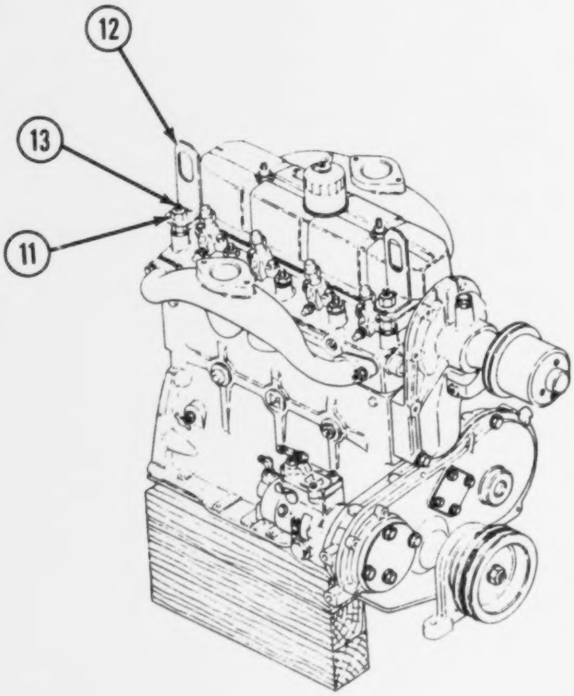
18. REMOVE TWO LIFTING EYES FROM TWO CYLINDER HEAD STUDS.
    - Remove two nuts (11) and lifting eyes (12) from two studs (13). Use 7/8 inch socket with 5 inch extension and ratchet handle.



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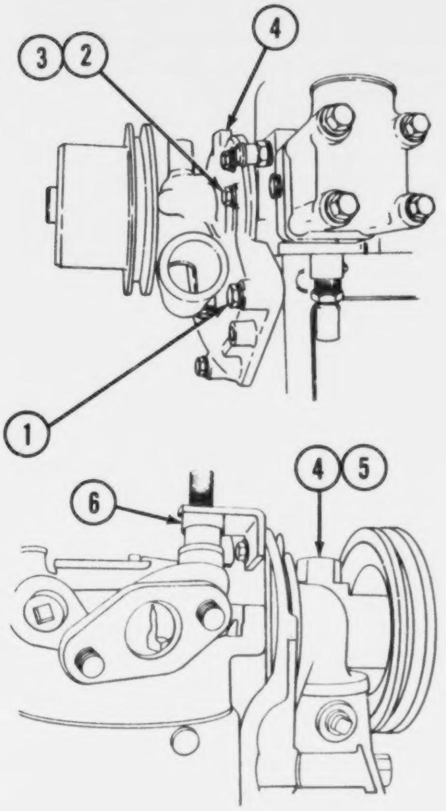
A. DISASSEMBLY — Continued

WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

19. REMOVE WATER PUMP ASSEMBLY FROM ENGINE.
    - Loosen screw (1). Use 5/8 inch open end wrench.
    - Remove screw (2) and lock washer (3) from water pump assembly (4). Use 5/8 inch box end wrench. Discard lock washer.
    - Remove water pump assembly (4), gasket (5), and flat washer (6) from engine. Discard gasket.
    - Clean mating surfaces on water pump assembly (4) and engine. Use putty knife, solvent, and brush.



EXHAUST MANIFOLD REMOVED FOR CLARITY

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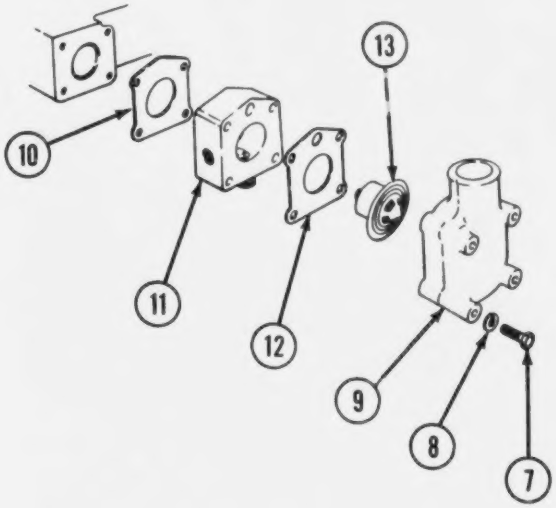
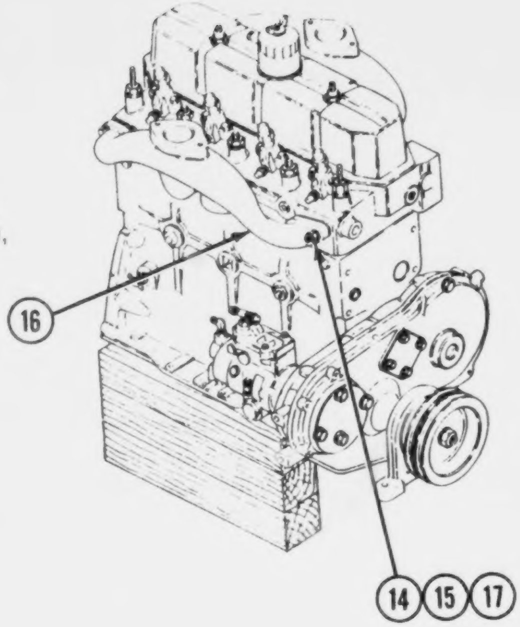
20. REMOVE THERMOSTAT HOUSING, THERMOSTAT, GASKET, SPACER, AND GASKET FROM ENGINE.
    - Remove four screws (7), lock washers (8), and housing (9) from engine. Use 9/16 inch socket with ratchet handle. Discard lock washers.
    - Remove gasket (10), spacer (11), gasket (12), and thermostat (13) from housing (9). Discard gaskets.
    - Clean mating surfaces on housing (9), spacer (11), and engine. Use putty knife, solvent, and brush.



21 REMOVE EXHAUST MANIFOLD FROM ENGINE.

- Remove eight nuts (14), washers (15), manifold (16), and four gaskets (17) from engine. Use 5/8 inch socket with 5 inch extension and ratchet handle. Discard gaskets.
- Plug engine. Use rags.
- Clean gasket mating surfaces on manifold (16) and engine. Use putty knife, wire brush, solvent, and rags.



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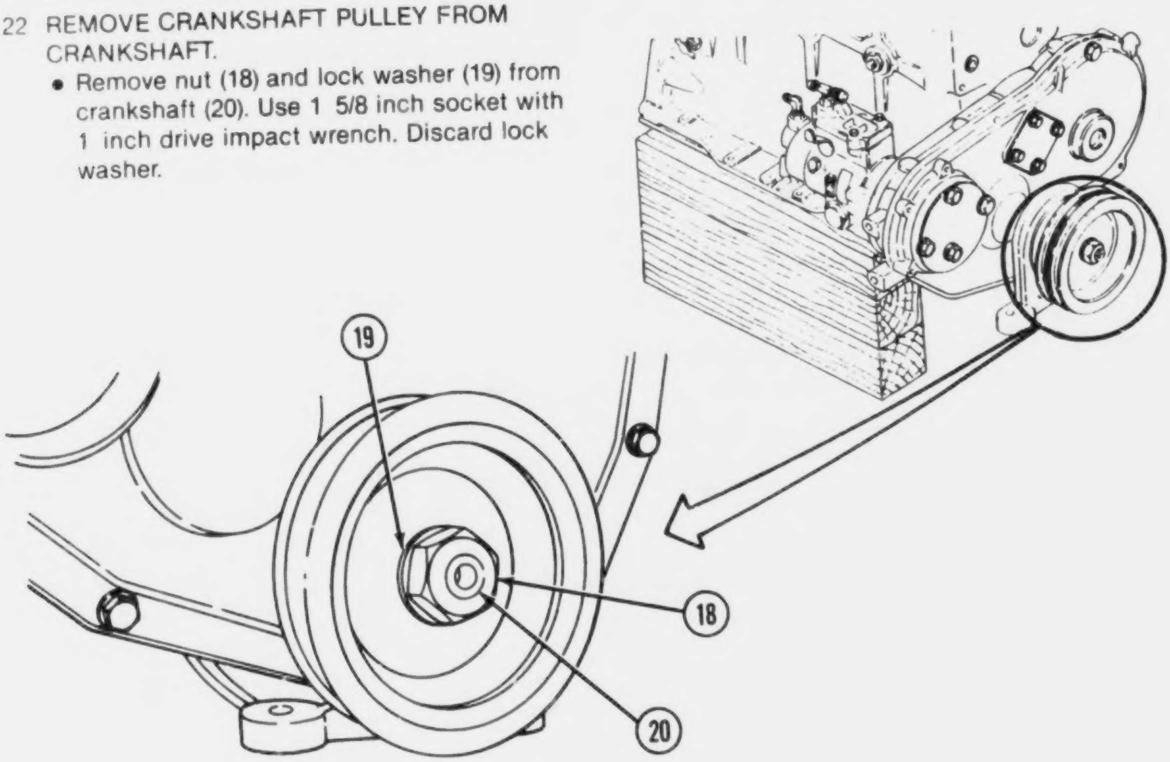
22 REMOVE CRANKSHAFT PULLEY FROM CRANKSHAFT.

- Remove nut (18) and lock washer (19) from crankshaft (20). Use 1 5/8 inch socket with 1 inch drive impact wrench. Discard lock washer.



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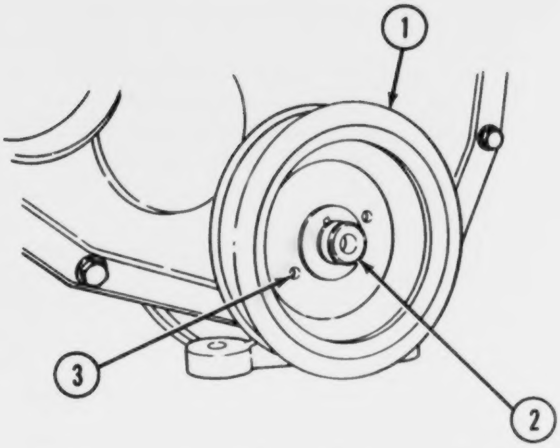
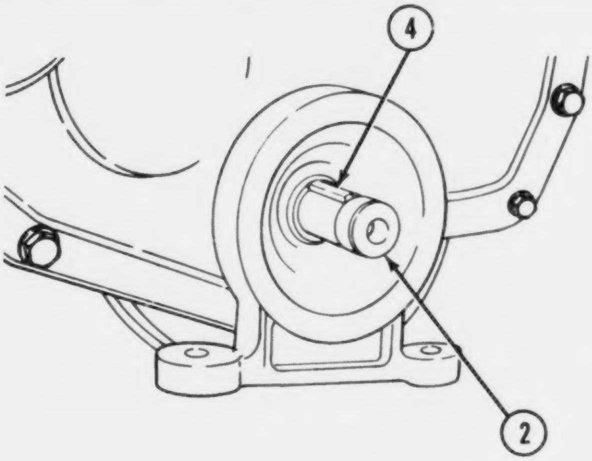
A. DISASSEMBLY — Continued

- Remove pulley (1) from crankshaft (2), using threaded holes (3) in pulley (1). Use pulley puller and 10 inch adjustable wrench.

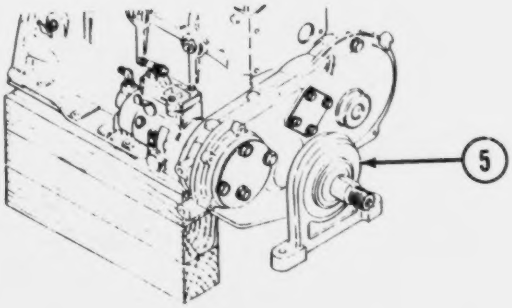


- Remove woodruff key (4) from crankshaft (2). Use 1/4 inch pin punch and soft faced hammer.



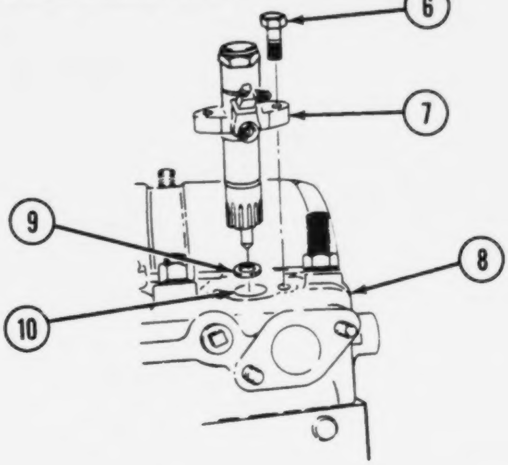
23. REMOVE FRONT ENGINE SUPPORT (5) FROM ENGINE.

24. REMOVE INTAKE MANIFOLD FROM ENGINE. (SEE INTAKE MANIFOLD, PAGE 15-21.)



CAUTION

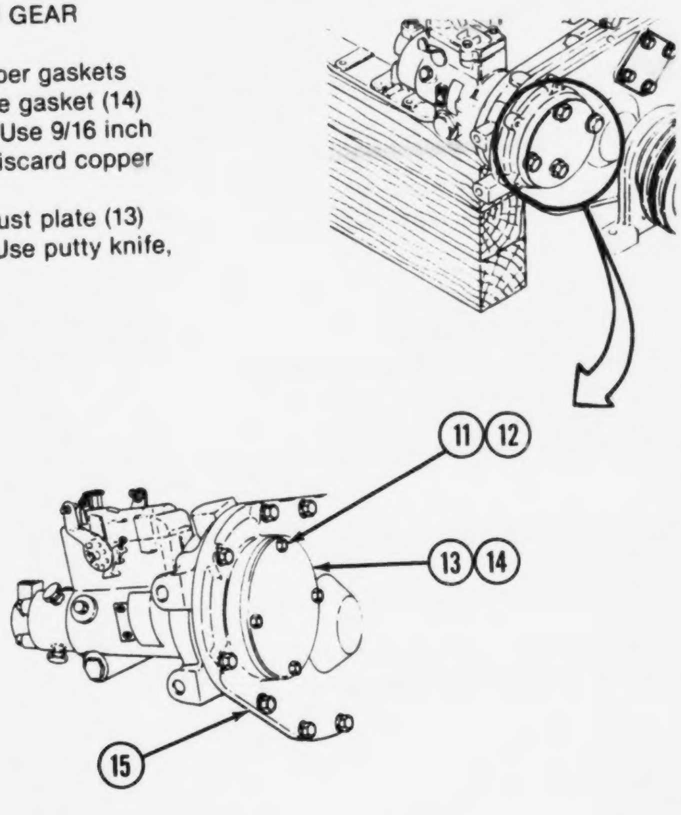
Fuel nozzle assemblies can be damaged by dirt or rough handling. Handle fuel nozzle assemblies carefully. Place fuel nozzle assemblies on clean surface.



25. REMOVE FOUR FUEL NOZZLE ASSEMBLIES FROM CYLINDER HEAD.
    - Tag and mark fuel nozzle assemblies.
    - Remove two screws (6) and fuel nozzle assembly (7) from cylinder head (8). Use pry bar and 9/16 inch socket with 5 inch extension and ratchet handle.
    - Place fuel nozzle assembly (7) on clean surface.
    - Remove injector sleeve washer (9) from fuel nozzle assembly bore (10). Use machinist's scriber. Discard washer.
    - Plug fuel nozzle assembly bore. Use rag.
    - Repeat above removal steps for other three fuel nozzle assemblies.

---

26. REMOVE THRUST PLATE FROM GEAR HOUSING COVER.
    - Remove four screws (11), copper gaskets (12), thrust plate (13), and plate gasket (14) from gear housing cover (15). Use 9/16 inch socket with ratchet handle. Discard copper gaskets and plate gasket.
    - Clean mating surfaces on thrust plate (13) and gear housing cover (15). Use putty knife, solvent, and brush.



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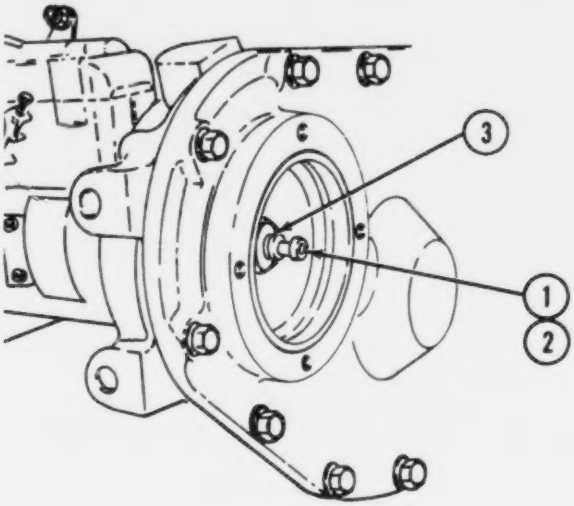
A. DISASSEMBLY — Continued

27. REMOVE THRUST PLUG (1) AND SPRING (2) FROM FUEL INJECTION PUMP DRIVE SHAFT (3).



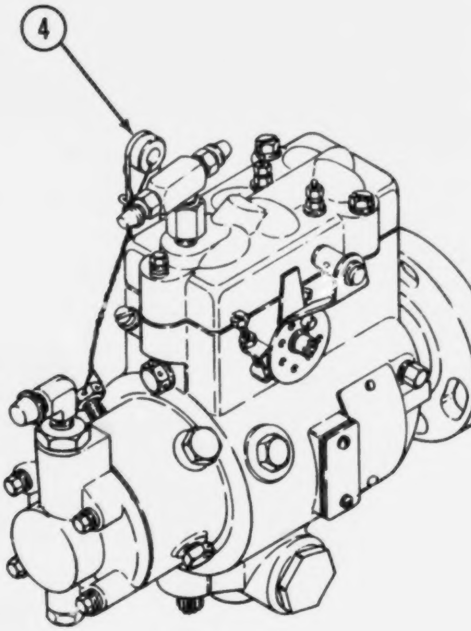
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

CAUTION

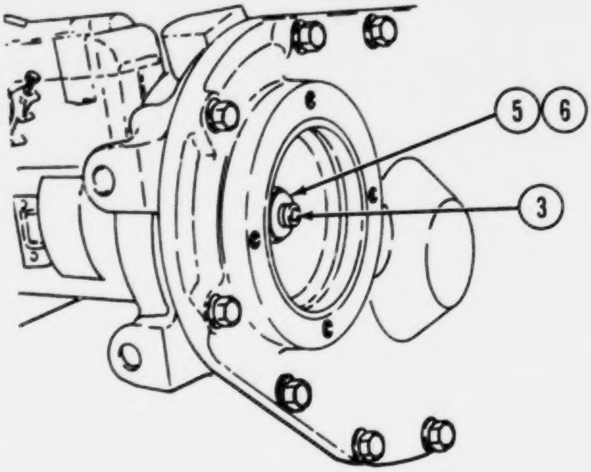
Parts inside fuel injection pump will come loose if throttle is not in open position. Secure throttle control lever in open position before you remove fuel injection pump.

28. SECURE THROTTLE CONTROL LEVER IN OPEN POSITION.
   - Move control lever (4) fully to left (open position).
   - Secure control lever (4) in open position. Use safety wire and slip joint pliers.

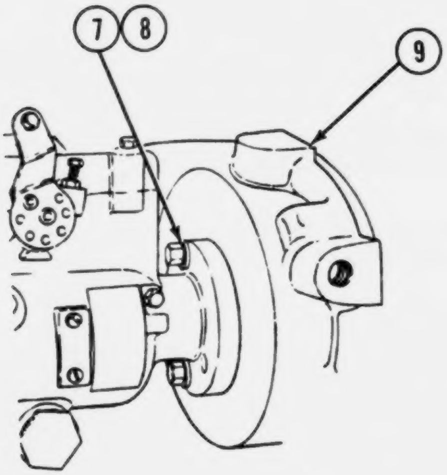


29. REMOVE FUEL INJECTION PUMP FROM GEAR HOUSING.

- Remove nut (5) and lock washer (6) from fuel injection pump drive shaft (3). Use 7/8 inch socket with ratchet handle. Discard lock washer.



- Remove two screws (7) and washers (8) from gear housing (9). Use 9/16 inch open end wrench.



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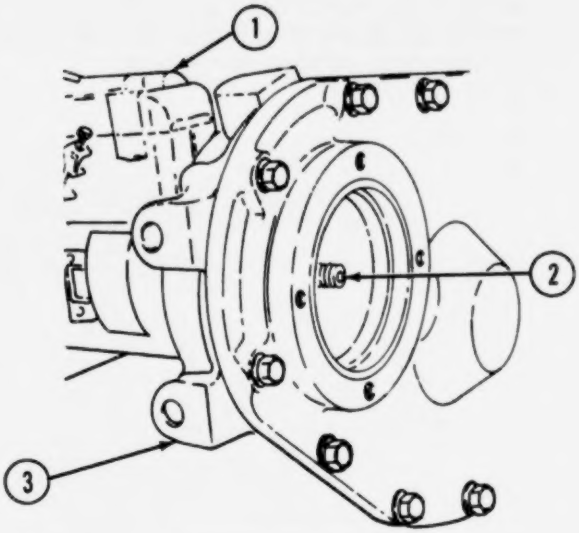
A. DISASSEMBLY — Continued

- Support fuel pump (1), and tap end of fuel injection pump drive shaft (2) to remove fuel pump (1) from gear housing (3). Use soft faced hammer.



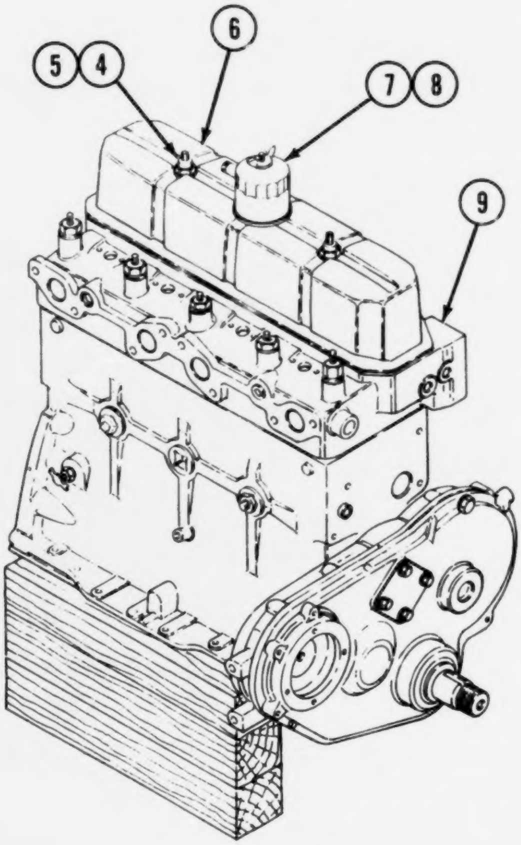
WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

CAUTION

Cylinder head valve cover can be easily bent. Be careful when removing cylinder head valve cover.

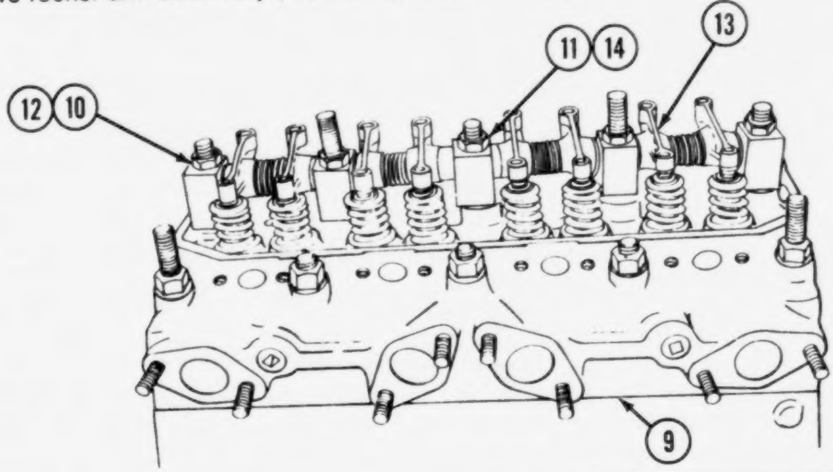
30. REMOVE CYLINDER HEAD VALVE COVER WITH BREATHER CAP FROM CYLINDER HEAD.
    - Remove two nuts (4) and washers (5) from cover (6). Use 7/8 inch socket with ratchet handle.
    - Remove cover (6) with cap (7) and gasket (8) from cylinder head (9). Use pry bar. Discard gasket.
    - Clean gasket mating surfaces on cover (6) and cylinder head (9). Use putty knife, solvent, and rags.



NOTE

All nuts must be loosened before removal, to relieve pressure on valve springs.

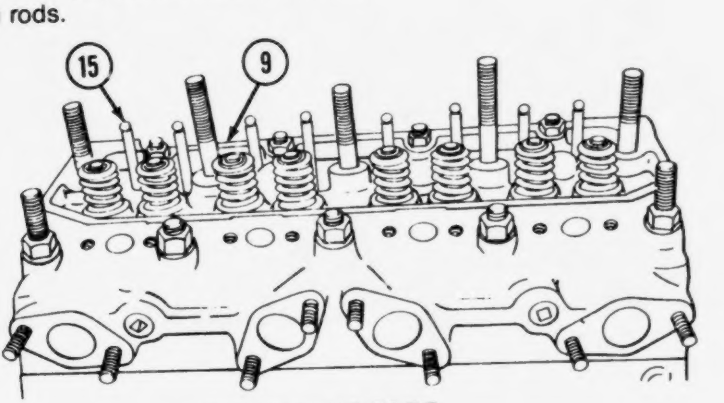
31. REMOVE ROCKER ARM ASSEMBLY FROM CYLINDER HEAD.
    - Loosen nut (10). Use 15/16 inch socket with ratchet handle.
    - Loosen four nuts (11). Use 7/8 inch deep socket with ratchet handle.
    - Remove nut (10) and washer (12) from rocker arm assembly (13). Use 15/16 inch socket with ratchet handle.
    - Remove four nuts (11) and washers (14) from rocker arm assembly (13). Use 7/8 inch deep socket with ratchet handle.
    - Remove rocker arm assembly (13) from cylinder head (9).



CAUTION

Engine can be damaged unless each push rod is installed in position from which it was removed. Keep push rods in order. Tag and mark each push rod as it is removed from cylinder head assembly.

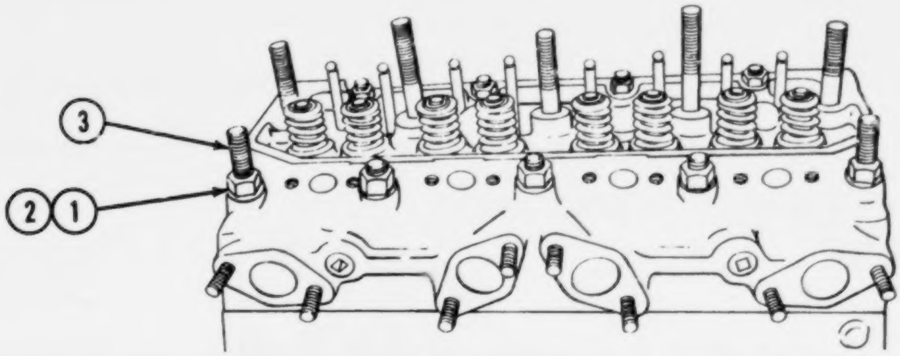
32. REMOVE EIGHT PUSH RODS FROM CYLINDER HEAD ASSEMBLY.
    - Remove eight push rods (15) from cylinder head (9).
    - Tag and mark push rods.



GO TO NEXT PAGE

A. DISASSEMBLY — Continued

33. REMOVE NINE CYLINDER HEAD MOUNTING NUTS AND WASHERS FROM CYLINDER HEAD STUDS.
    - Remove nine nuts (1) and washers (2) from studs (3). Use 7/8 inch deep socket with hinged handle.



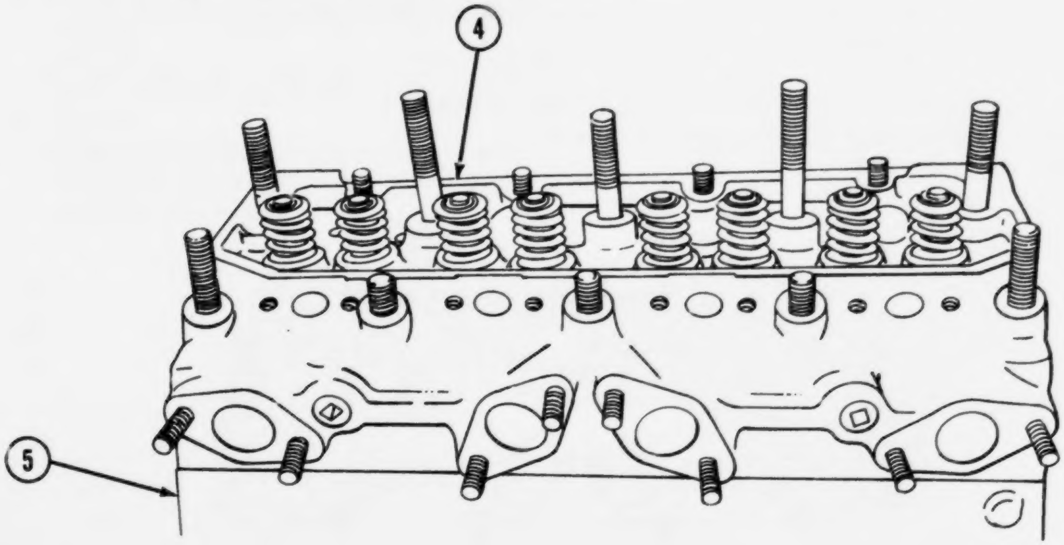
WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

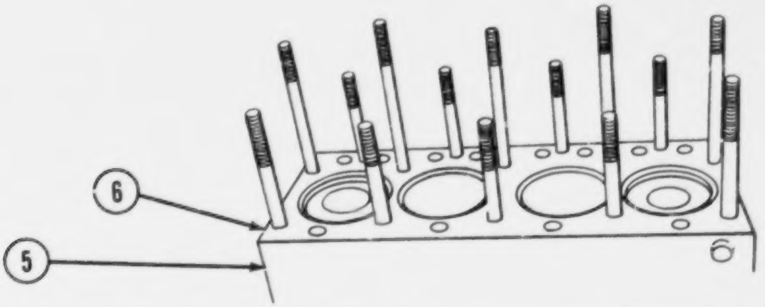
CAUTION

Cylinder head and engine block can be damaged if cylinder head is pried from engine block. Do not pry cylinder head from engine block. Do not insert anything between cylinder head and engine block.

34. REMOVE CYLINDER HEAD FROM CYLINDER BLOCK.
    - Tap around cylinder head (4). Use soft faced hammer.
    - Remove cylinder head (4) from block (5). Use helper.



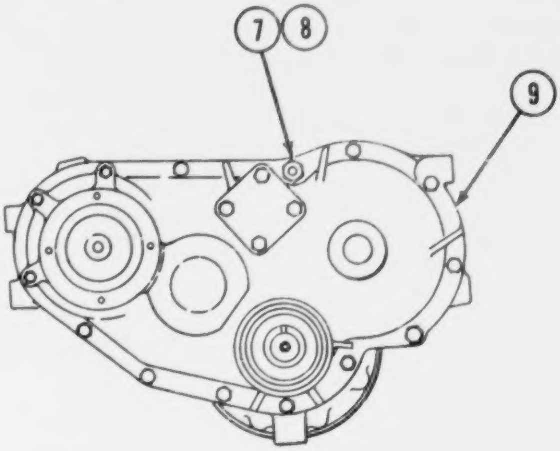
35. REMOVE CYLINDER HEAD GASKET FROM CYLINDER BLOCK.
    - Remove cylinder head gasket (6) from block (5). Discard cylinder head gasket.
    - Cover block (5). Use plastic and masking tape.



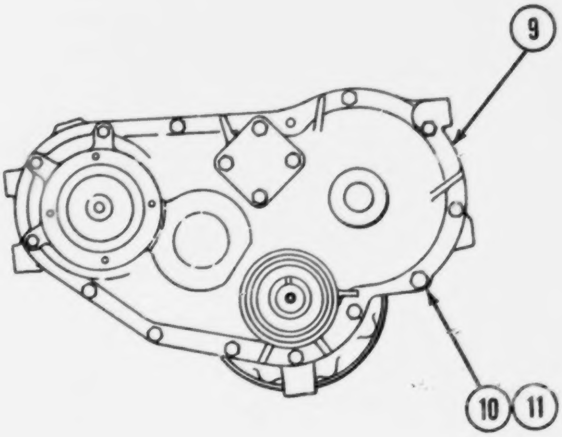
WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

36. REMOVE GEAR HOUSING COVER FROM GEAR HOUSING.
    - Remove nut (7) and lock washer (8) from gear housing cover (9). Use 3/4 inch socket with ratchet handle. Discard lock washer.



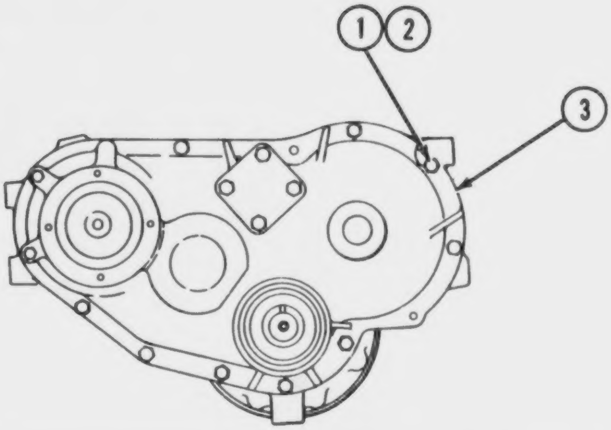
- Remove screw (10) and lock washer (11) from gear housing cover (9). Use 3/4 inch socket with ratchet handle. Discard lock washer.



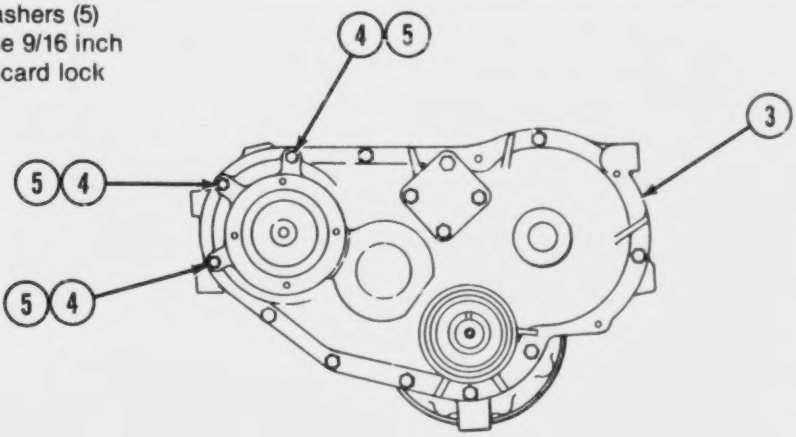
GO TO NEXT PAGE

A. DISASSEMBLY — Continued

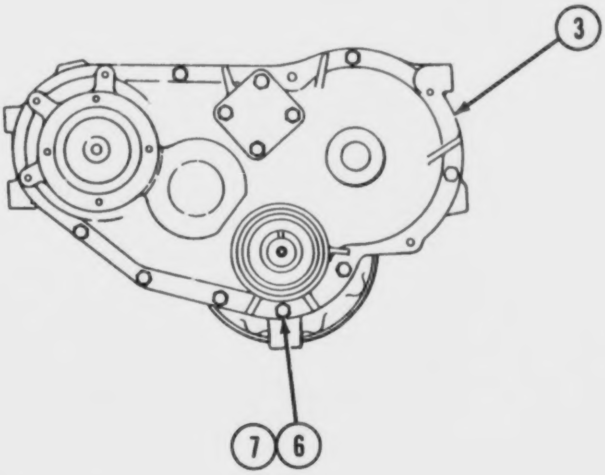
- Remove screw (1) and lock washer (2) from gear housing cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washer.



- Remove screws (4) and lock washers (5) from gear housing cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washers.



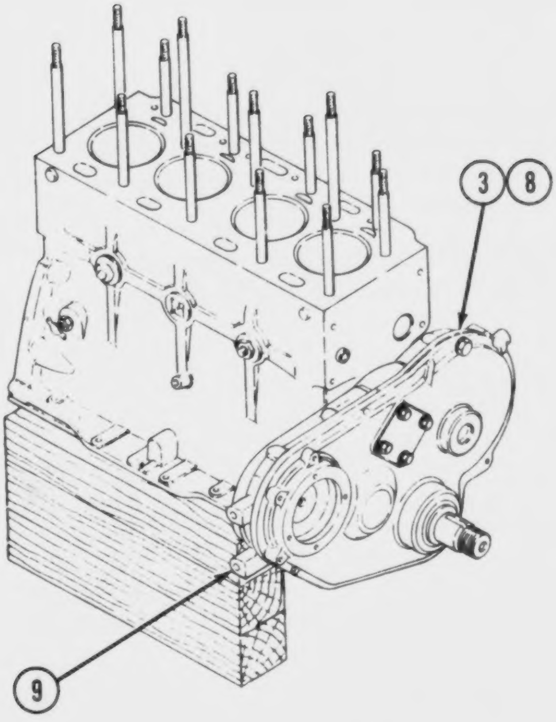
- Remove eight screws (6) and lock washers (7) from gear housing cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washers.



WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

- Remove gear housing cover (3) and gasket (8) from gear housing (9). Use soft faced hammer. Discard gasket.
- Clean gasket mating surfaces on gear housing cover (3) and gear housing (9). Use putty knife, solvent, and rags.



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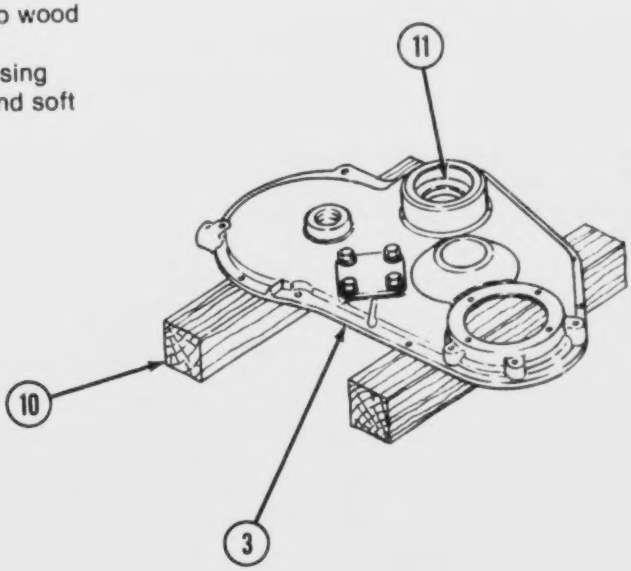
37. REMOVE OIL SEAL FROM GEAR HOUSING COVER.
    - Place gear housing cover (3) on two wood blocks (10).
    - Remove oil seal (11) from gear housing cover (3). Use 1/8 inch pin punch and soft faced hammer. Discard oil seal.



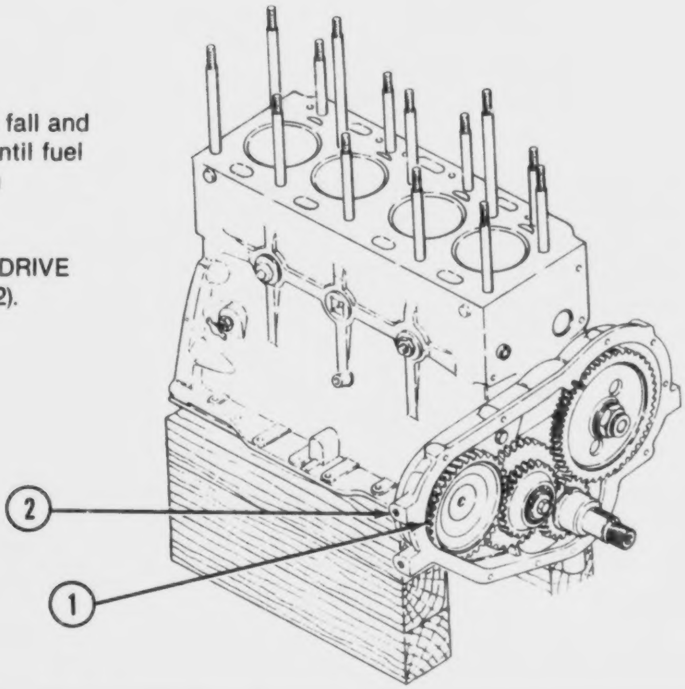
GO TO NEXT PAGE

A. DISASSEMBLY — Continued

CAUTION

Fuel injection pump drive gear can fall and be damaged. Do not rotate gears until fuel injection pump drive gear has been removed from gear housing.

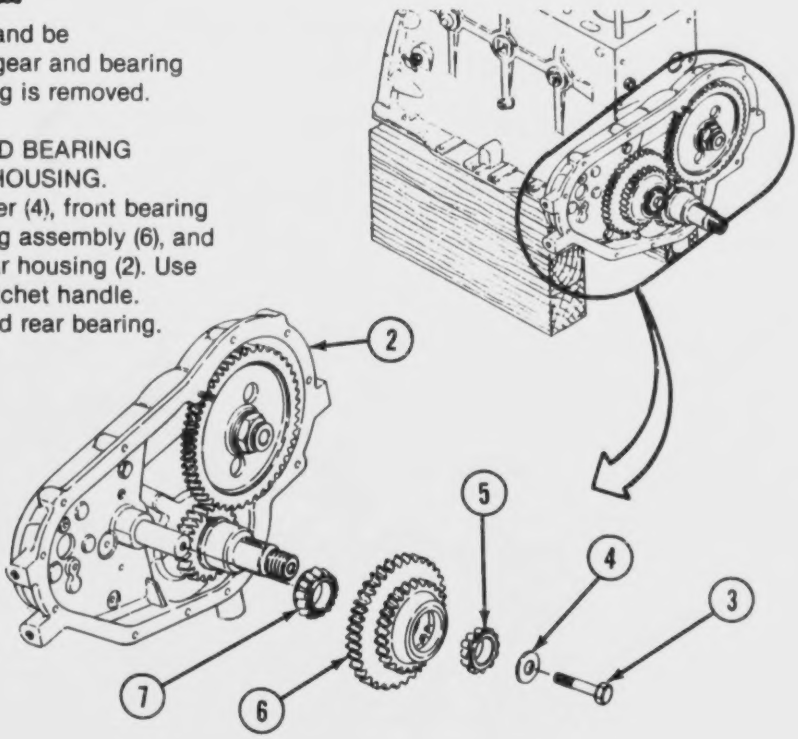
38. REMOVE FUEL INJECTION PUMP DRIVE GEAR (1) FROM GEAR HOUSING (2).



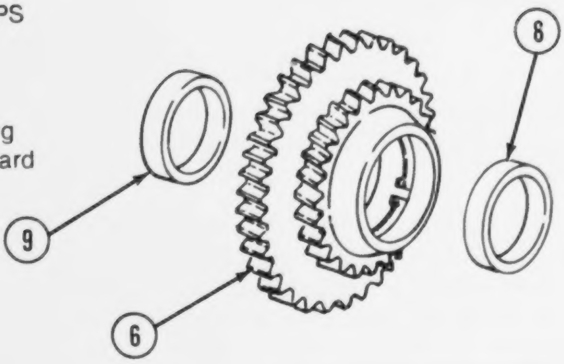
CAUTION

Front bearing can fall out and be damaged. Do not tilt idler gear and bearing assembly until front bearing is removed.

39. REMOVE IDLER GEAR AND BEARING ASSEMBLY FROM GEAR HOUSING.
    - Remove screw (3), washer (4), front bearing (5), idler gear and bearing assembly (6), and rear bearing (7) from gear housing (2). Use 7/16 inch socket with ratchet handle. Discard front bearing and rear bearing.



40. REMOVE FRONT AND REAR BEARING CUPS FROM IDLER GEAR AND BEARING ASSEMBLY.
    - Remove front bearing cup (8) and rear bearing cup (9) from idler gear and bearing assembly (6). Use mechanical puller. Discard bearing cups.



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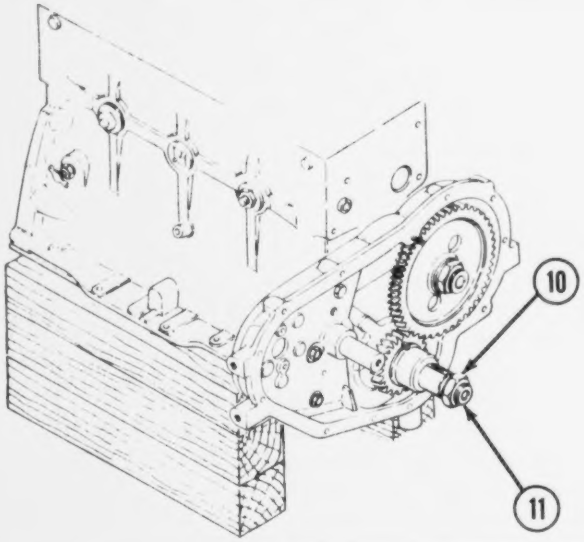
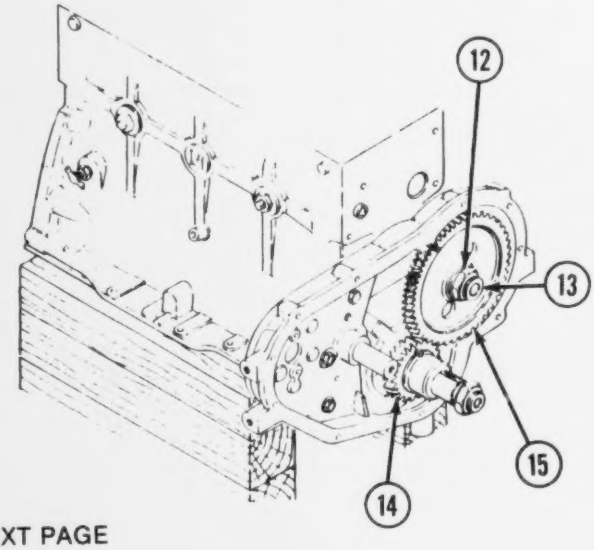
41. INSTALL CRANKSHAFT NUT ON CRANKSHAFT.
    - Install nut (10) on crankshaft (11). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



NOTE

Camshaft gear and crankshaft gear can bind during camshaft gear removal. Rotate crankshaft slightly to prevent binding.

42. REMOVE CAMSHAFT GEAR FROM CAMSHAFT.
    - Remove nut (12) from camshaft (13). Use 1 5/8 inch socket with 1 inch drive impact wrench.
    - Rotate crankshaft gear (14) slightly, and remove camshaft gear (15) from camshaft (13). Use 1 5/8 inch socket with 3/4 inch drive hinged handle and mechanical puller. Use helper.



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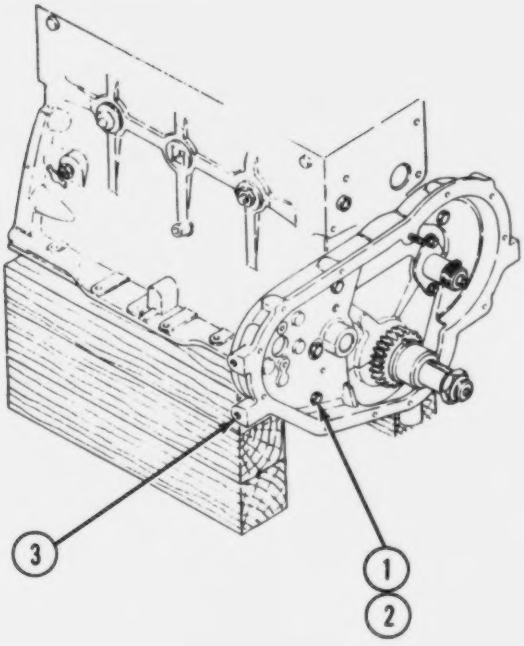
A. DISASSEMBLY — Continued

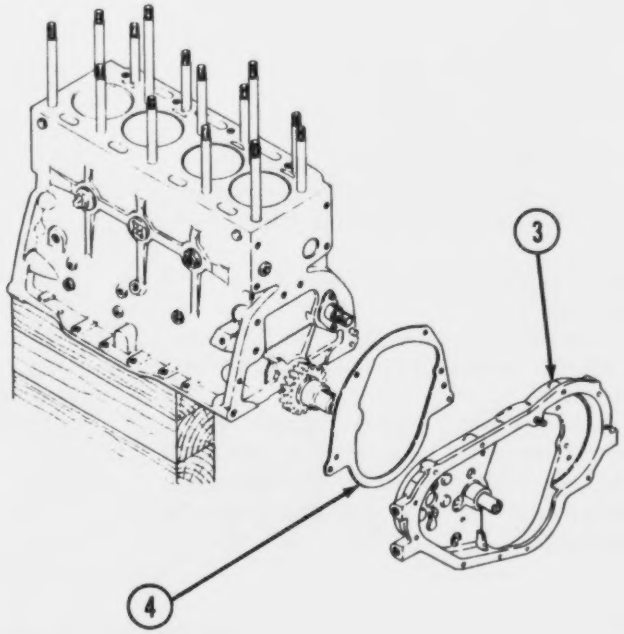
WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

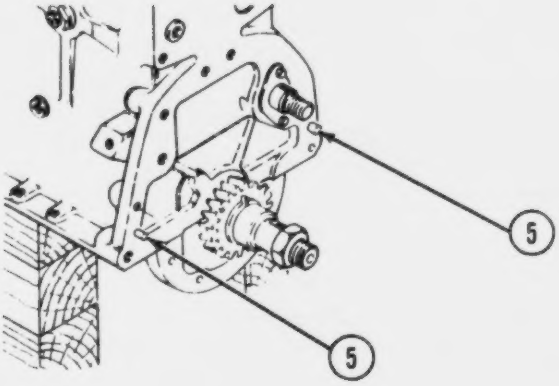
43. REMOVE GEAR HOUSING FROM ENGINE.
    - Remove five screws (1) and lock washers (2) from gear housing (3). Use 3/4 inch socket with ratchet handle. Discard lock washers.



- Remove gear housing (3) from engine. Use soft faced hammer.
- Remove gasket (4) from gear housing (3). Use putty knife. Discard gasket.
- Clean gasket mating surfaces on gear housing (3) and engine. Use putty knife, solvent, and rags.



44. REMOVE RIGHT AND LEFT DOWELS FROM ENGINE.
    - Remove dowels (5) from engine. Use plier wrench. Discard dowels.



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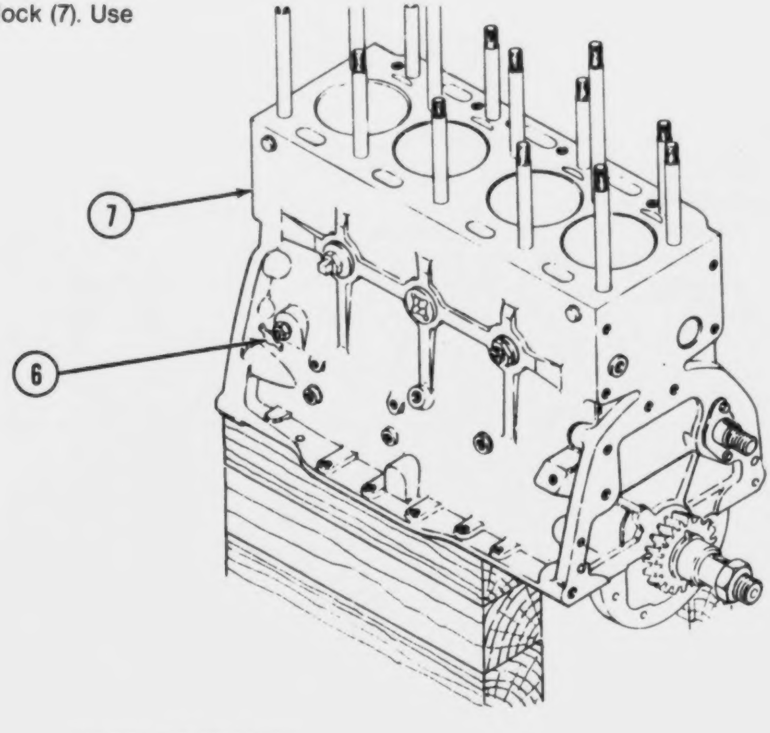
45. REMOVE DRAIN COCK FROM ENGINE CYLINDER BLOCK.
    - Remove drain cock (6) from block (7). Use 7/8 inch open end wrench.
    - Plug block.



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A. DISASSEMBLY — Continued

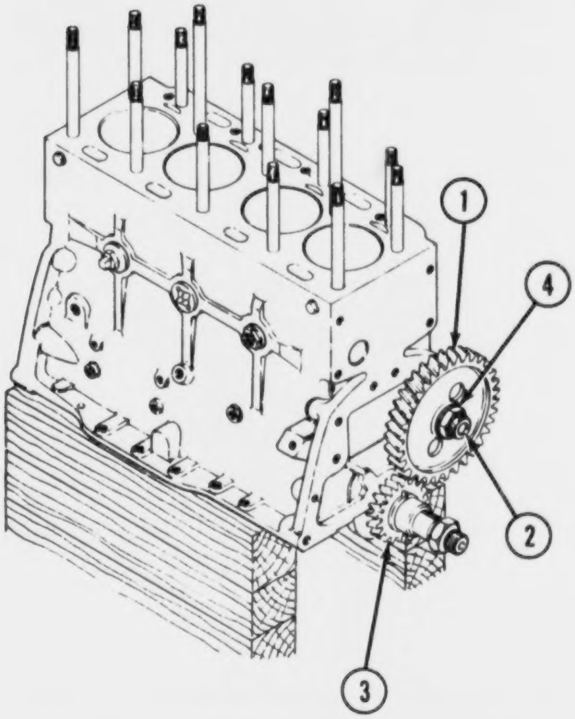
NOTE

Camshaft gear is part of engine short block.

• • • •

Camshaft gear and crankshaft gear can bind during camshaft gear installation. Rotate crankshaft gear slightly to prevent binding.

46. INSTALL CAMSHAFT GEAR ON CAMSHAFT.
    - Place camshaft gear (1) on camshaft (2).
    - Rotate crankshaft gear (3) slightly and tap camshaft gear (1) on camshaft (2). Use soft faced hammer and 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.
    - Install nut (4) on camshaft (2). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



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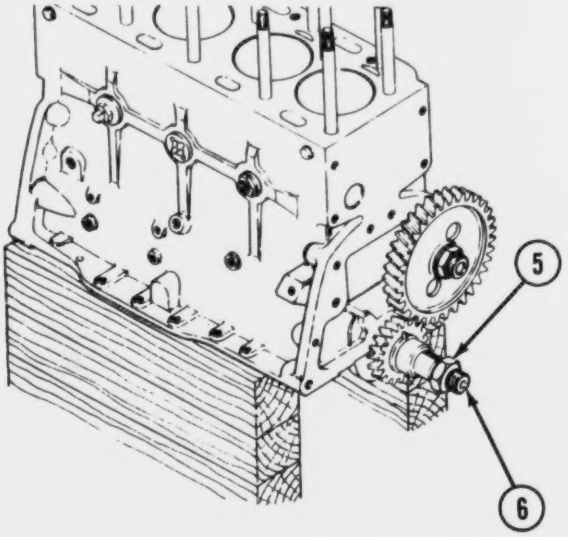
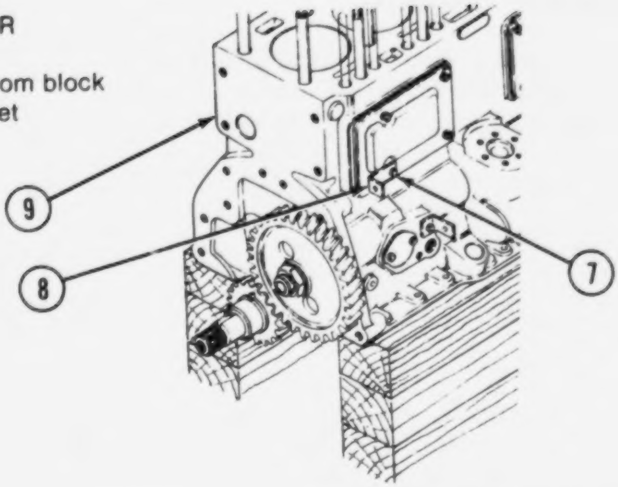
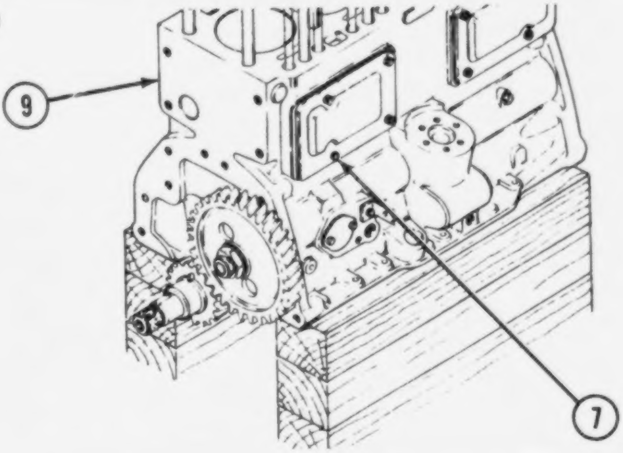
47. REMOVE CRANKSHAFT NUT FROM CRANKSHAFT.
    - Remove nut (5) from crankshaft (6). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



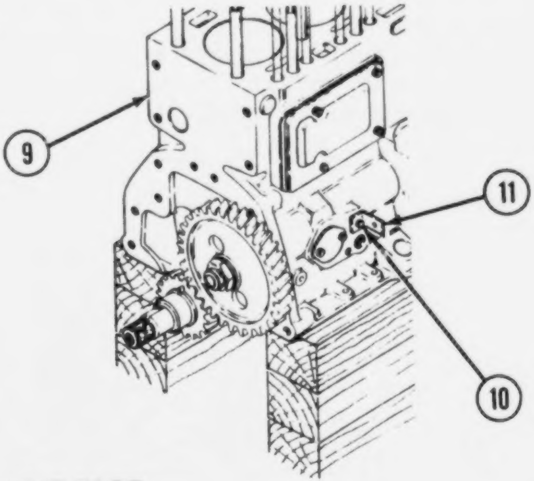
48. REMOVE THREE WIRING HARNESS BRACKETS FROM ENGINE CYLINDER BLOCK.
    - Remove screw (7) and bracket (8) from block (9). Use 9/16 inch socket with ratchet handle.



- Install screw (7) on block (9). Use 9/16 inch socket with ratchet handle.



- Remove screw (10) and bracket (11) from block (9). Use 9/16 inch socket with ratchet handle.



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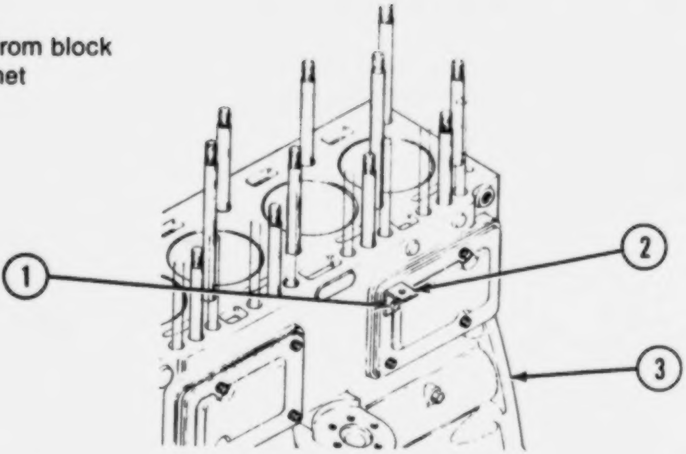
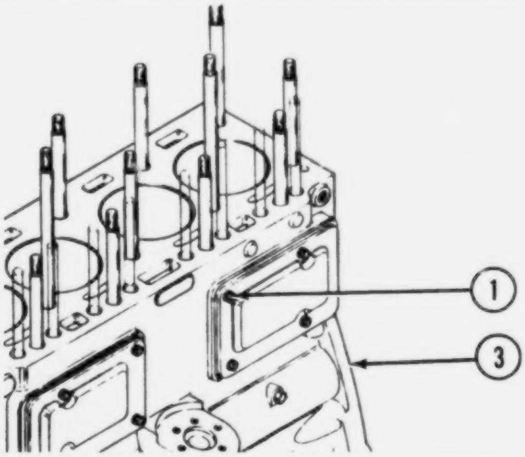
A. DISASSEMBLY — Continued

- Remove screw (1) and bracket (2) from block (3). Use 9/16 inch socket with ratchet handle.

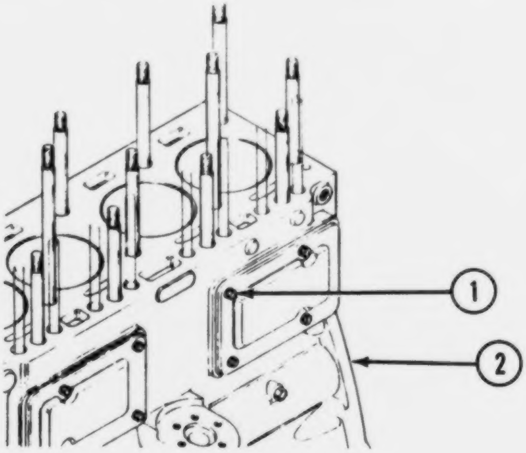


- Install screw (1) on block (3). Use 9/16 inch socket with ratchet handle.

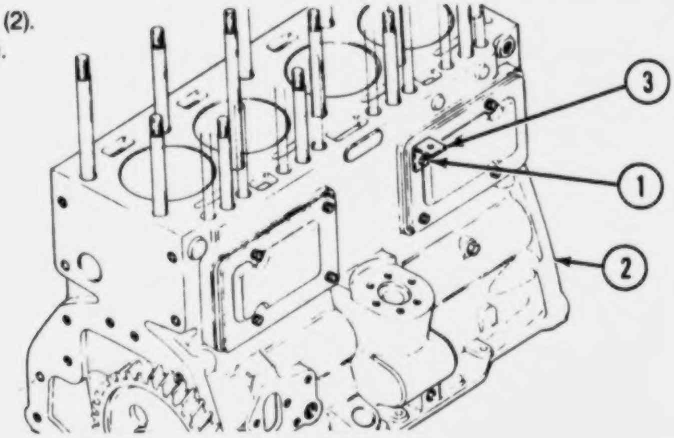


B. REASSEMBLY

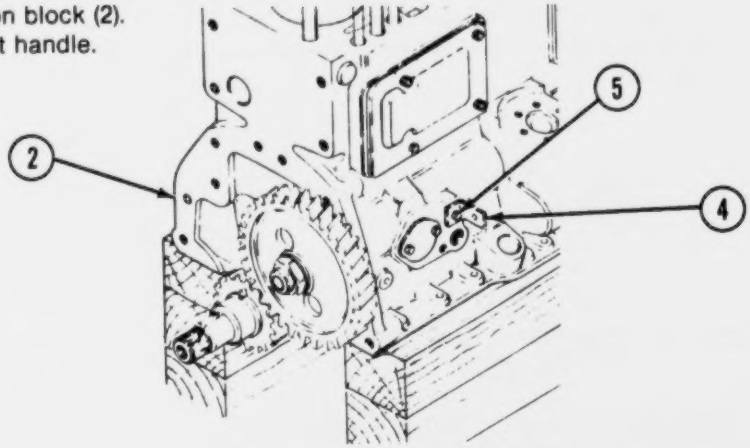
1. INSTALL THREE WIRING HARNESS BRACKETS ON ENGINE CYLINDER BLOCK.
   - Remove screw (1) from block (2). Use 9/16 inch inch socket with ratchet handle.



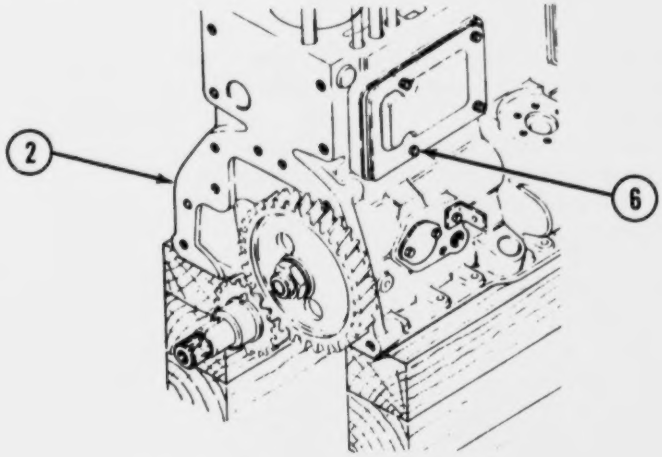
- Install bracket (3) and screw (1) on block (2). Use 9/16 inch socket with ratchet handle.



- Install bracket (4) and screw (5) on block (2). Use 9/16 inch socket with ratchet handle.



- Remove screw (6) from block (2). Use 9/16 inch socket with ratchet handle.



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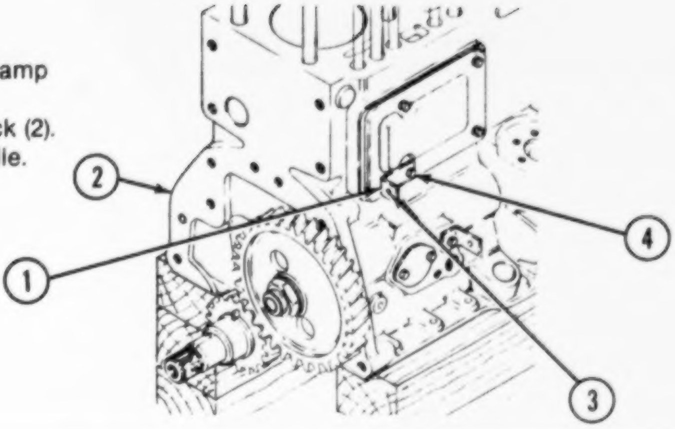
B. REASSEMBLY — Continued

- Position bracket (1) on block (2) with clamp hole (3) towards front of block (2).
- Install bracket (1) and screw (4) on block (2). Use 9/16 inch socket with ratchet handle.



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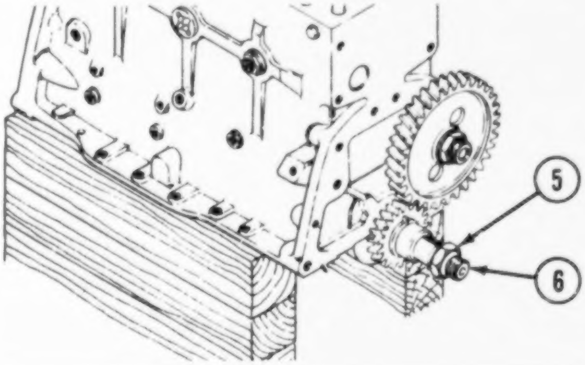
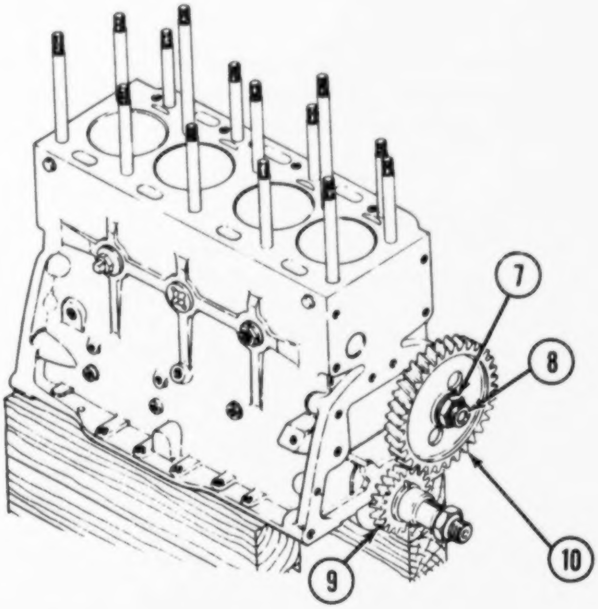
2. INSTALL CRANKSHAFT NUT ON CRANKSHAFT.
   - Install nut (5) on crankshaft (6). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



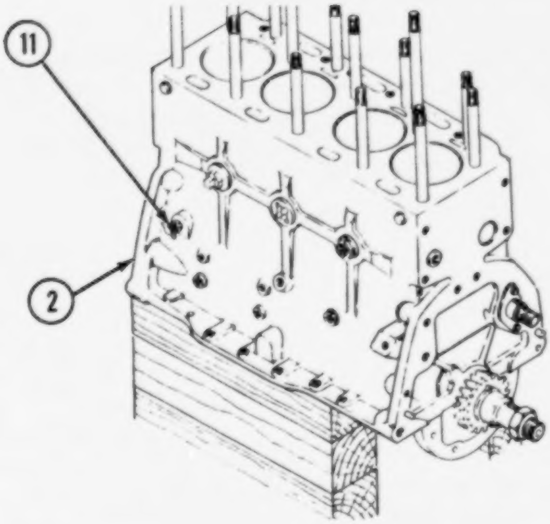
NOTE

Camshaft gear and crankshaft can bind during removal. Rotate crankshaft gear slightly to prevent binding.

3. REMOVE CAMSHAFT GEAR FROM CAMSHAFT.
   - Remove nut (7) from camshaft (8). Use 1 5/8 inch socket with 1 inch drive impact wrench.
   - Rotate crankshaft gear (9) slightly, and remove camshaft gear (10) from camshaft (8). Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.



4. INSTALL DRAIN COCK ON ENGINE CYLINDER BLOCK.
   - Remove plug from block (2).
   - Apply light coat of sealing compound to threads of drain cock (11).
   - Install drain cock (11) on block (2). Use 7/8 inch open end wrench.
   - Close drain cock (11) if it is open.



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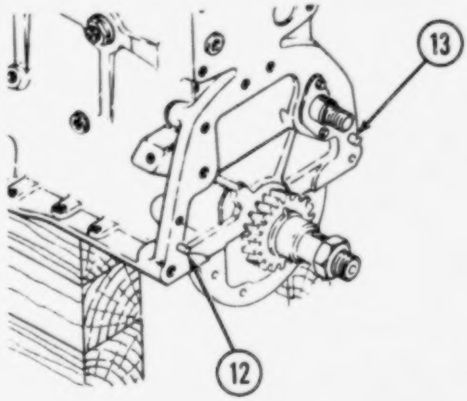
5. INSTALL NEW RIGHT AND LEFT DOWELS ON ENGINE.
   - Install new right dowel (12) and new left dowel (13) on engine. Use soft faced hammer.



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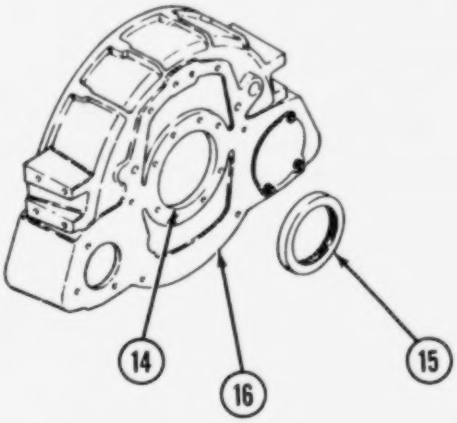
6. INSTALL NEW REAR CRANKSHAFT SEAL ON BELL HOUSING.
   - Apply thin layer of sealing compound to bell housing bore (14).
   - Install new rear crankshaft seal (15) on bell housing (16). Use arbor press.



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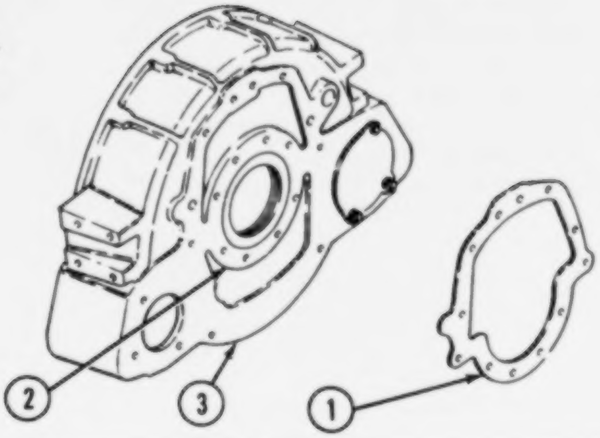
B. REASSEMBLY — Continued

7. INSTALL NEW GASKET ON BELL HOUSING.
   - Apply adhesive to new gasket (1) and bell housing gasket mounting surface (2).
   - Install gasket (1) on bell housing (3) with mounting holes alined.



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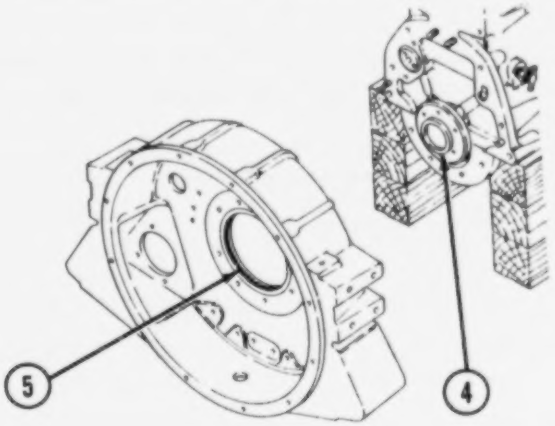
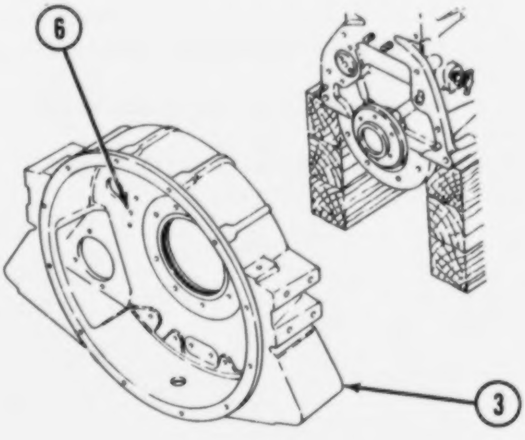
8. LUBRICATE CRANKSHAFT SURFACE AND SEAL INNER RACE.
   - Apply light coat of lubricating oil to crankshaft surface (4) and seal inner race (5).



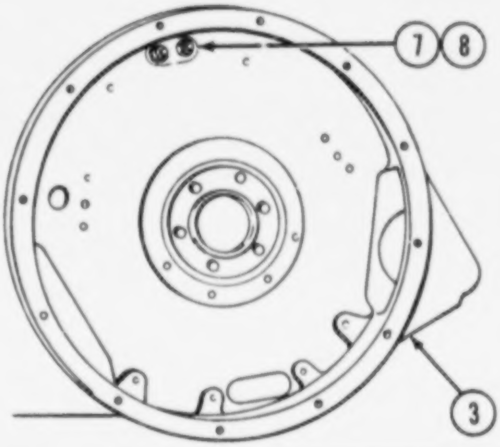
CAUTION

When placing bell housing on engine, be careful not to damage seal as seal engages crankshaft.

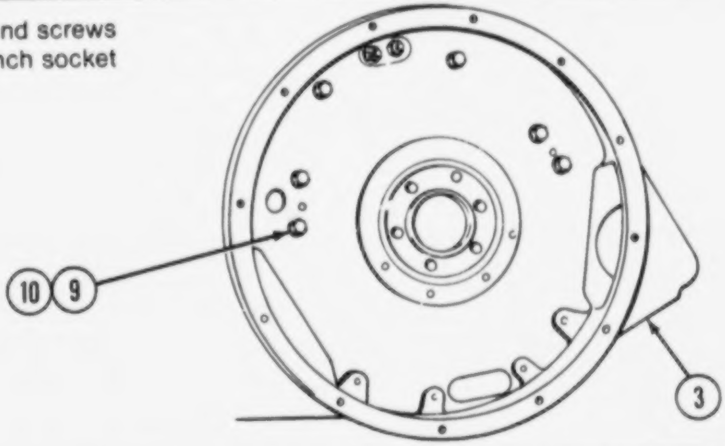
9. INSTALL BELL HOUSING ON ENGINE.
   - Position bell housing (3) on engine with eight mounting holes (6) alined.



- Install bell housing (3), two new lock washers (7), and nuts (8) on engine. Use 3/4 inch socket with ratchet handle.



- Install six new lock washers (9) and screws (10) on bell housing (3). Use 3/4 inch socket with ratchet handle.



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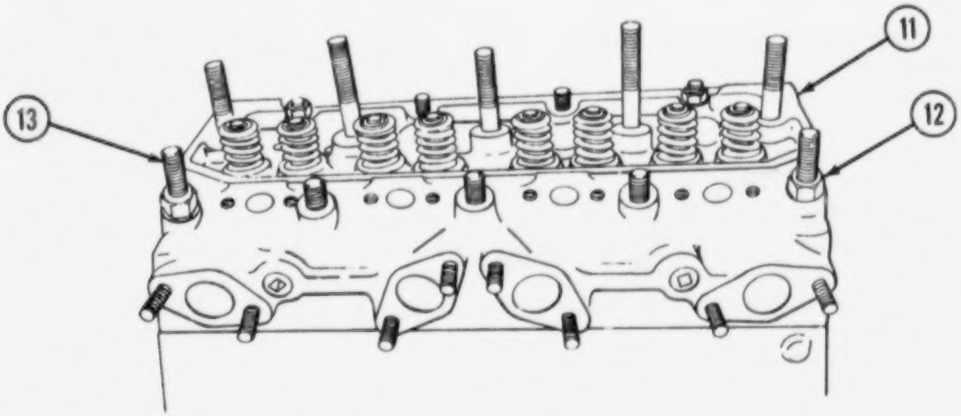
10. SECURE CYLINDER HEAD ON ENGINE.
    - Place cylinder head (11) on engine.
    - Install four nuts (12) on four cylinder head corner studs (13). Use 7/8 inch deep socket with ratchet handle. Do not tighten.



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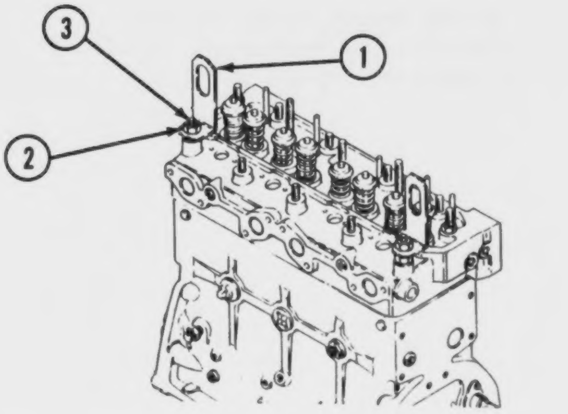
B. REASSEMBLY — Continued

11. INSTALL TWO LIFTING EYES ON TWO STUDS.
    - Install two lifting eyes (1) and nuts (2) on studs (3). Use 7/8 inch socket with 5 inch extension and ratchet handle.



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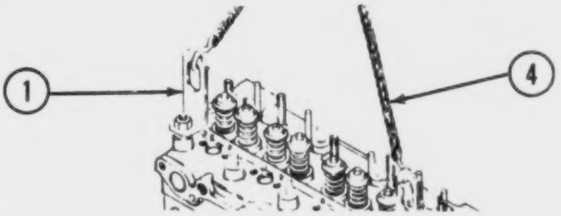
12. ATTACH ENGINE AND TRANSMISSION SLING (4) TO TWO LIFTING EYES (1).



WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

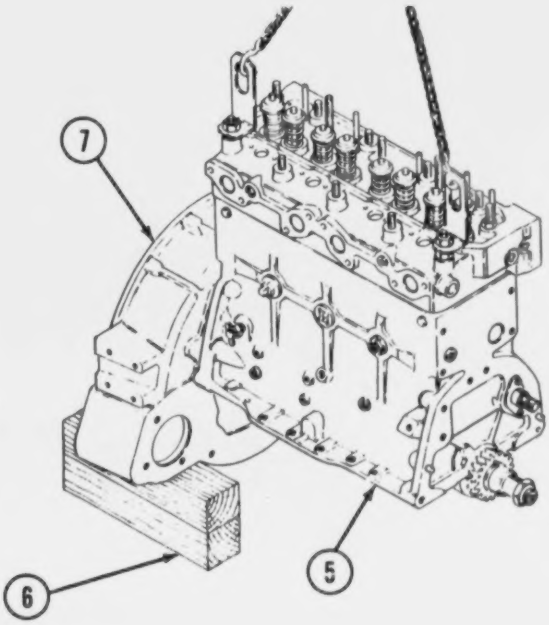
NOTE

Wood blocks must be secured together to prevent blocks from slipping out from under bell housing.

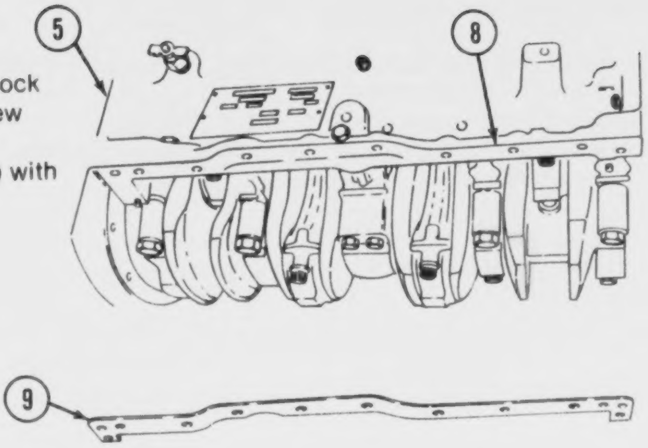
• • • •

Support diesel engine with enough wood blocks to allow 14 1/4 in. (36.2 cm) clearance under cylinder block.

13. REPOSITION WOOD BLOCKS UNDER BELL HOUSING.
    - Raise engine high enough to allow 14 1/4 in. (36.2 cm) clearance under cylinder block (5). Use hoist and measuring tape.
    - Reposition wood blocks (6) under bell housing (7).
    - Lower engine onto wood blocks (6). Use hoist. Use helper.



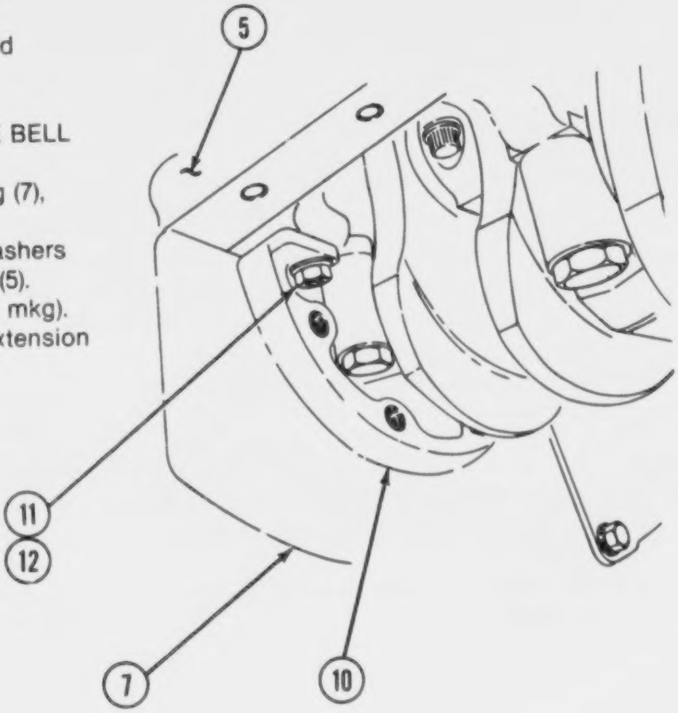
14. INSTALL NEW GASKET ON ENGINE CYLINDER BLOCK.
    - Apply adhesive cement to cylinder block mating surface (8) and surfaces of new gasket (9).
    - Install gasket (9) on cylinder block (5) with mounting holes alined. Use helper.



NOTE

Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

15. INSTALL REAR ADAPTER ON ENGINE BELL HOUSING.
    - Position adapter (10) on bell housing (7), with mounting holes alined.
    - Install adapter (10), two new lock washers (11), and nuts (12) on cylinder block (5).
    - Torque two nuts (12) to 15 ft lb (2.1 mkg). Use 1/2 inch crowfoot with 5 inch extension and 3/8 inch drive torque wrench.



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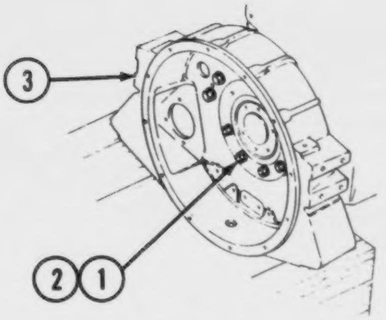
B. REASSEMBLY — Continued

- Install four new lock washers (1) and screws (2) on bell housing (3).
- Torque four screws (2) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.

16. INSTALL FLYWHEEL AND RING GEAR ON ENGINE. (SEE FLYWHEEL AND RING GEAR, PAGE 19-77.)



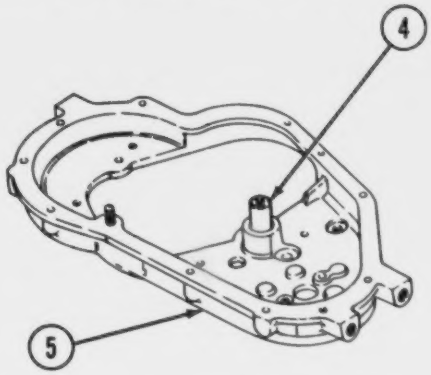
CAUTION

Idler shaft may come loose and hurt you. Apply pressure slowly when using dial indicator scale.

NOTE

Idler shaft must be checked for correct fitting in gear housing before installing idler gears. Idler shaft must withstand a pulling force of 32 lb (14.5 kg).

17. CHECK IDLER SHAFT FOR TIGHT FITTING IN GEAR HOUSING.
    - Check shaft (4) for tight fitting in gear housing (5). Use dial indicator scale. Shaft (4) must withstand a pulling force of 32 lb (14.5 kg).
    - If shaft (4) is tight in gear housing (5), go to step 19.
    - If shaft (4) is loose in gear housing (5), remove shaft (4) from gear housing (5). Use arbor press.



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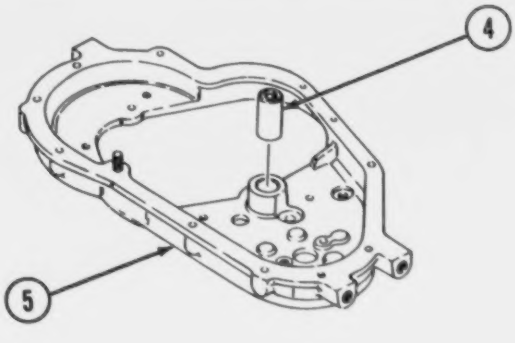
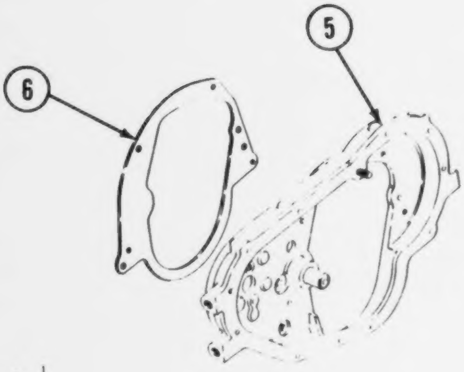
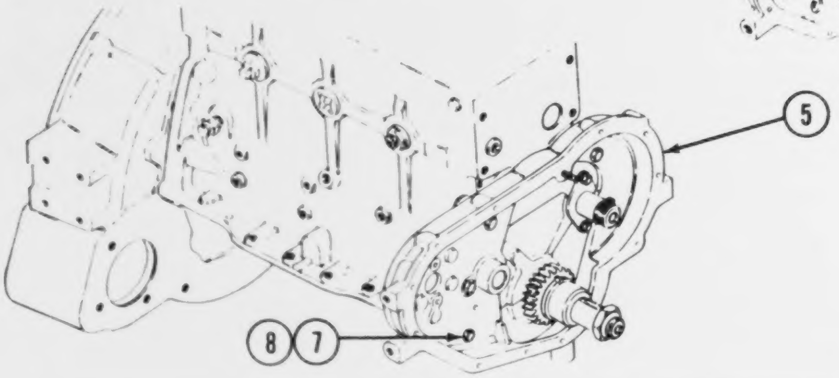
18. INSTALL IDLER SHAFT ON GEAR HOUSING.
    - Apply light coat of sealing compound to shaft (4).
    - Install shaft (4) in gear housing (5). Use arbor press.

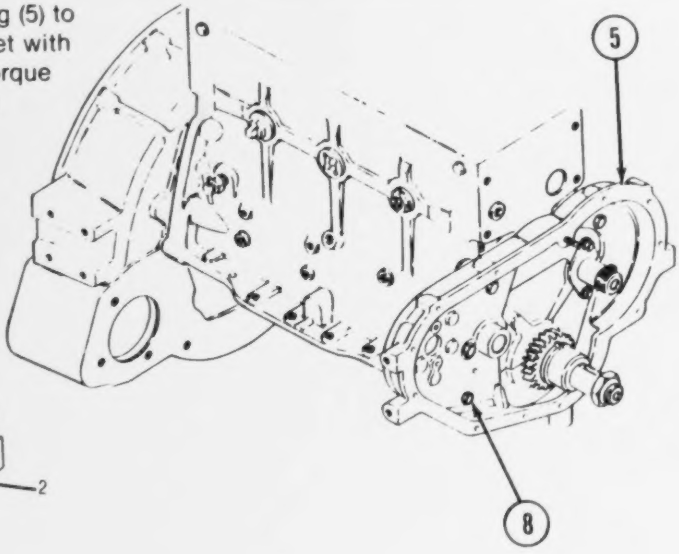


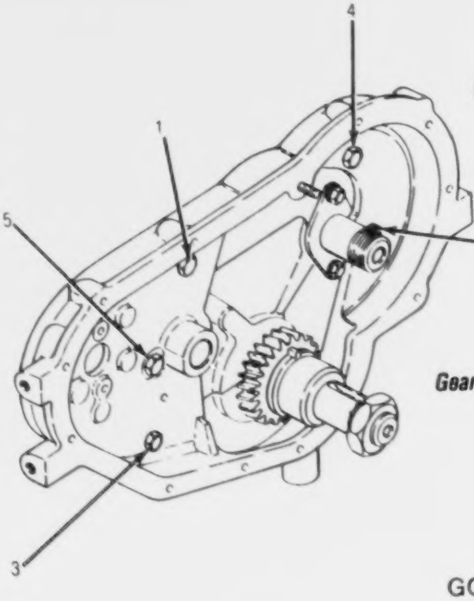
19. INSTALL GEAR HOUSING ON ENGINE.
    - Apply adhesive cement to new housing gasket (6) and mounting surface of gear housing (5).
    - Position housing gasket (6) on gear housing (5) with mounting holes alined.
    - Position gear housing (5) on engine with mounting holes alined.
    - Install gear housing (5), five new lock washers (7), and screws (8) on engine.





- Torque five screws (8) on gear housing (5) to 40 ft lb (5.5 mkg). Use 3/4 inch socket with 5 inch extension and 1/2 inch drive torque wrench. (See following Gear Housing Torquing Sequence.)





Gear Housing Torquing Sequence

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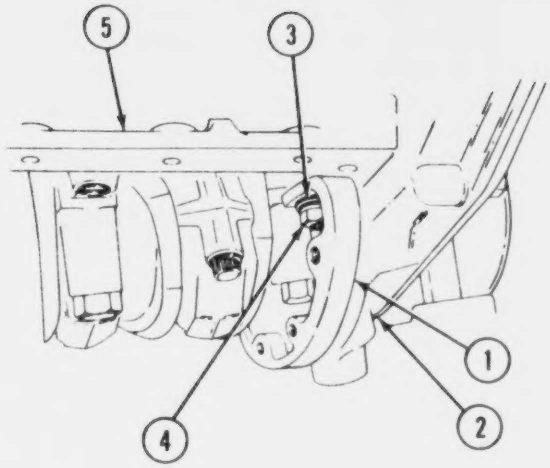
B. REASSEMBLY — Continued

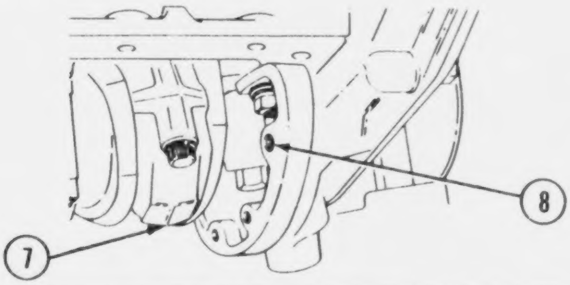


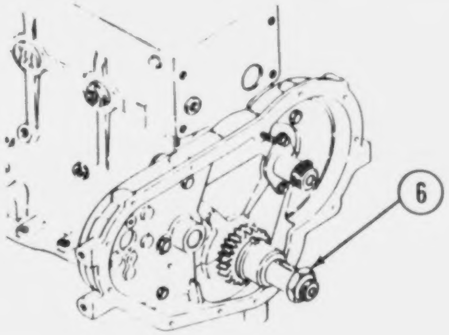
NOTE

Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

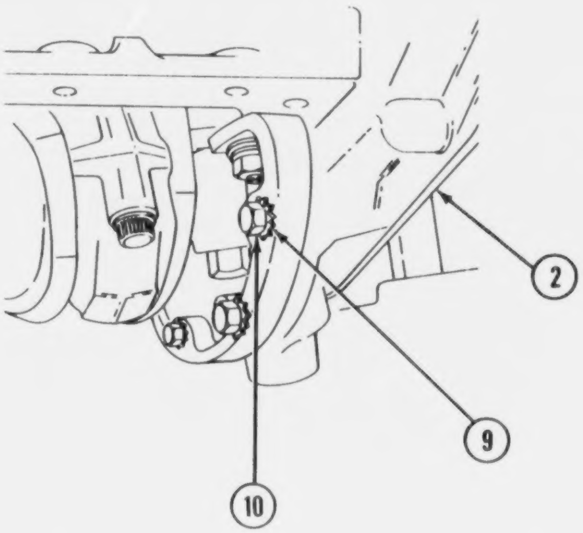
20. INSTALL FRONT ADAPTER ON ENGINE GEAR HOUSING.
    - Position adapter (1) on gear housing (2) with mounting holes alined.
    - Install adapter (1), two new lock washers (3), and nuts (4) on cylinder block (5).
    - Torque two nuts (4) to 15 ft lb (2.1 mkg). Use 1/2 inch crowfoot with 5 inch extension and 3/4 inch drive torque wrench.

- Turn crankshaft nut (6) to right until crankshaft (7) is clear of four adapter mounting screw holes (8). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.





- Install four new lock washers (9) and adapter mounting screws (10) on gear housing (2).
- Torque four adapter mounting screws (10) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with 3/8 inch drive torque wrench.



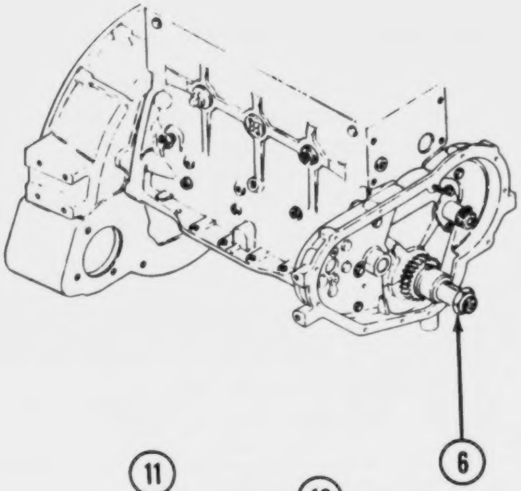
NOTE

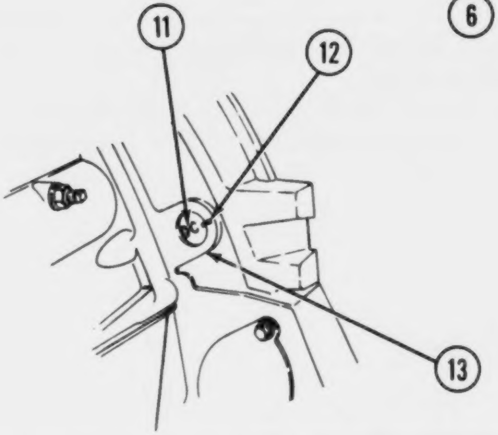
Engine must be on compression stroke before camshaft gear is installed.

• • • •

Number one piston is on compression stroke when it is fully extended above crankshaft and flywheel timing mark is on DC.

21. SET NUMBER ONE CYLINDER AT TOP DEAD CENTER.
    - Turn crankshaft nut (6) right until flywheel DC timing mark (11) alines with timing line (12) on bell housing (13). Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.

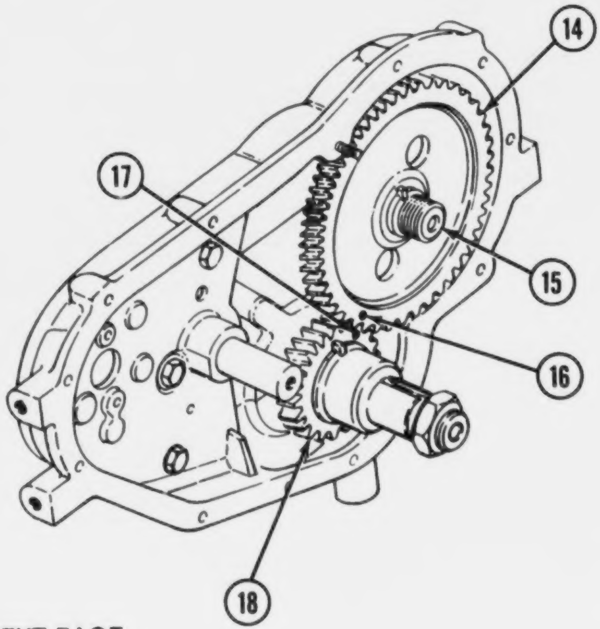




NOTE

Camshaft gear and crankshaft gear can bind during camshaft gear installation. Rotate crankshaft gear slightly to prevent binding.

22. INSTALL CAMSHAFT GEAR ON CAMSHAFT.
    - Position camshaft gear (14) on camshaft (15) so camshaft gear timing mark (16) and crankshaft timing mark (17) will be alined.
    - Rotate crankshaft gear (18) slightly, and tap camshaft gear (14) on camshaft (15). Use soft faced hammer and 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.



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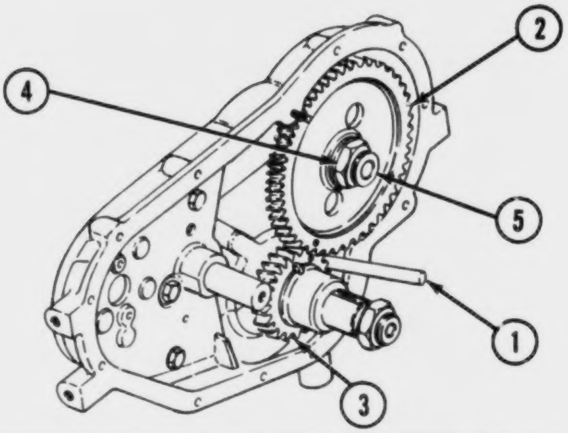
B. REASSEMBLY — Continued

- Insert 1/2 inch brass rod (1) between camshaft gear (2) and crankshaft gear (3).
- Install nut (4) on camshaft (5).
- Torque nut (4) to 125 — 135 ft lb (17.3 — 18.7 mkg). Use 1 5/8 inch socket with socket wrench adapter and 1/2 inch drive torque wrench.
- Remove 1/2 inch brass rod (1) from engine.



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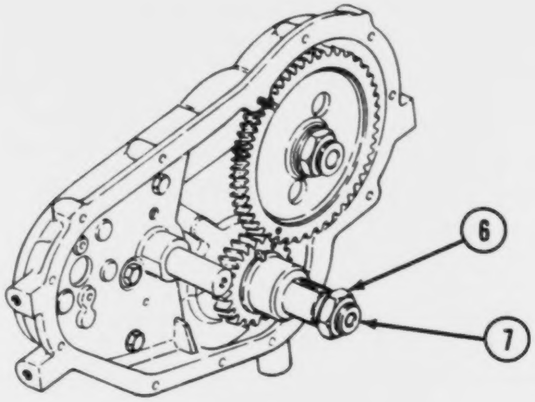
23. REMOVE CRANKSHAFT NUT FROM CRANKSHAFT.
    - Remove nut (6) from crankshaft (7). Use 1 5/8 inch socket with 1 inch drive impact wrench.



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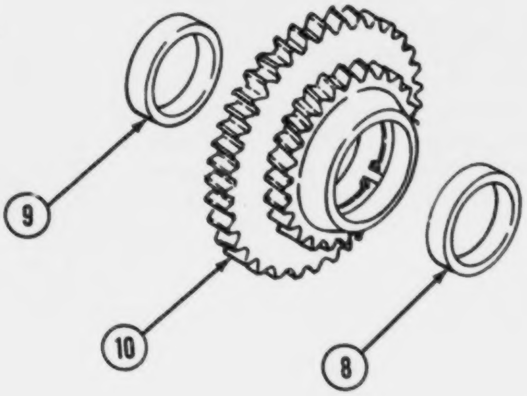
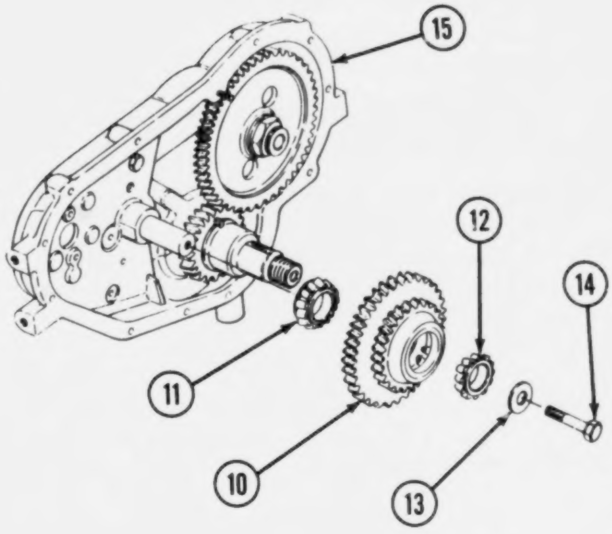
24. INSTALL NEW FRONT AND REAR BEARING CUPS ON IDLER GEAR AND BEARING ASSEMBLY.
    - Install new front bearing cup (8) and new rear bearing cup (9) on idler gear and bearing assembly (10). Use arbor press.



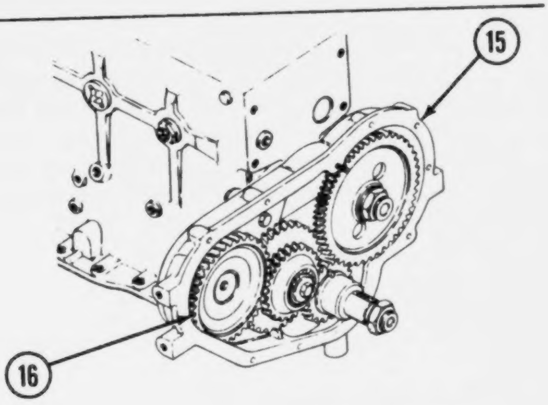
25. INSTALL IDLER GEAR AND BEARING ASSEMBLY ON GEAR HOUSING.
    - Install new rear bearing (11), idler gear and bearing assembly (10), new front bearing (12), washer (13), and screw (14) on gear housing (15).
    - Torque screw (14) to 25 ft lb (3.5 mkg). Use 7/16 inch socket with 3/8 inch torque wrench.



CAUTION

Fuel injection pump drive gear can fall out and be damaged. Do not rotate gears until gear housing cover has been installed.

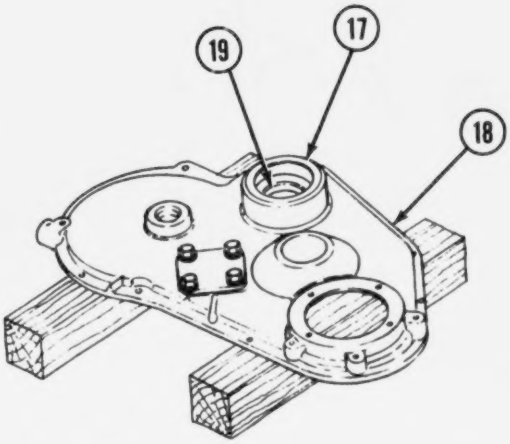
26. PLACE FUEL INJECTION PUMP DRIVE GEAR (16) ON GEAR HOUSING (15).



NOTE

Do not apply sealing compound to new oil seal if oil seal is pre-coated.

27. INSTALL NEW OIL SEAL ON GEAR HOUSING COVER.
    - Apply sealing compound to bore (17) in gear housing cover (18).
    - Install new oil seal (19) on gear housing cover (18). Use soft faced hammer.



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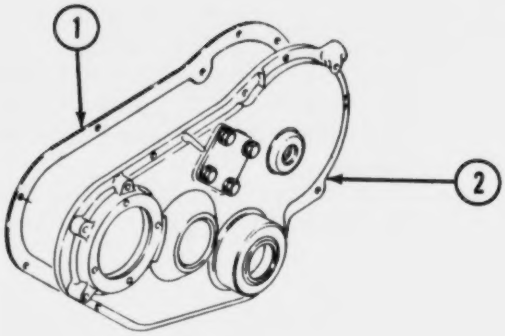
B. REASSEMBLY — Continued



NOTE

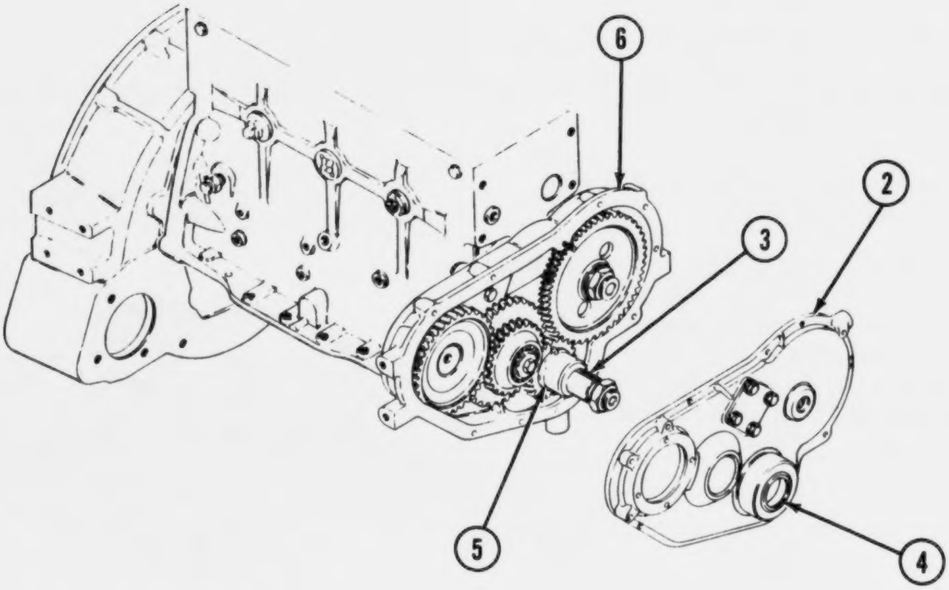
Adhesive cement is used to secure gasket to gear housing cover.

28. INSTALL NEW COVER GASKET ON GEAR HOUSING COVER.
    - Apply adhesive cement to new gasket (1).
    - Install gasket (1) on gear housing cover (2) with mounting holes alined.

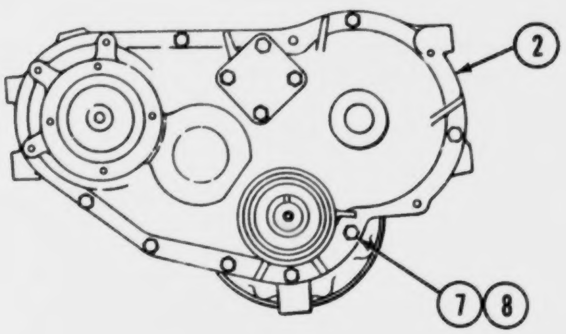
CAUTION

Crankshaft keyway can damage oil seal during gear housing cover installation. Cover crankshaft keyway with plastic sheet to protect oil seal.

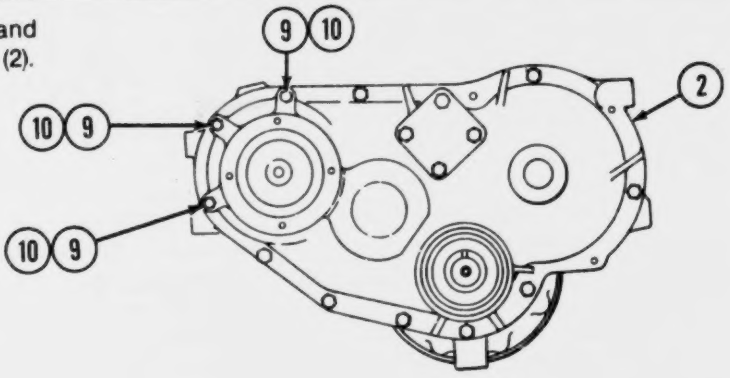
29. INSTALL GEAR HOUSING COVER ON GEAR HOUSING.
    - Cover crankshaft keyway (3). Use plastic sheet.
    - Apply hydraulic fluid to oil seal (4) and crankshaft sealing surface (5).
    - Slide gear housing cover (2) over crankshaft sealing surface (5), and position gear housing cover (2) on gear housing (6) with mounting holes alined.
    - Remove plastic sheet from crankshaft keyway (3). Discard plastic sheet.



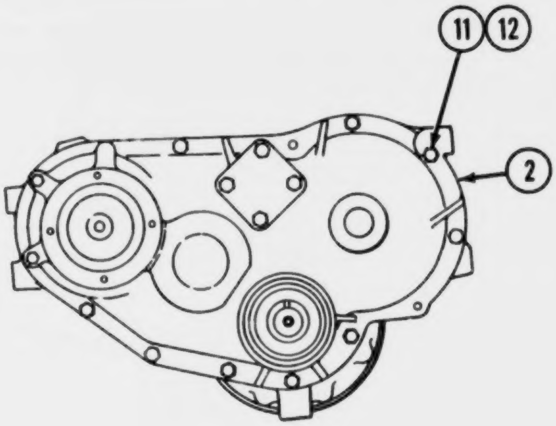
- Install eight new lock washers (7) and screws (8) on gear housing cover (2).



- Install three new lock washers (9) and screws (10) on gear housing cover (2).



- Install new lock washer (11) and screw (12) on gear housing cover (2).



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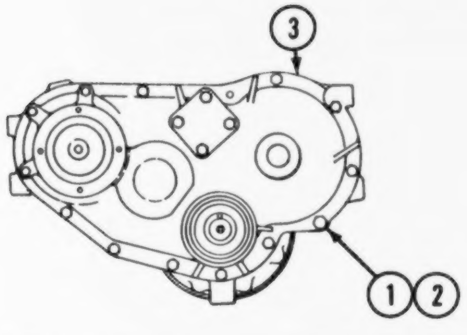
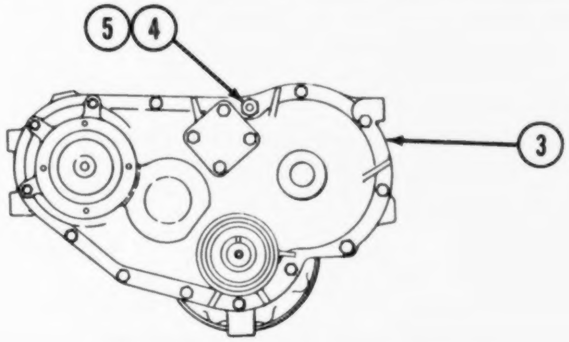
B. REASSEMBLY — Continued

- Install new lock washer (1) and screw (2) on gear housing cover (3).



- Install new lock washer (4) and nut (5) on gear housing cover (3).



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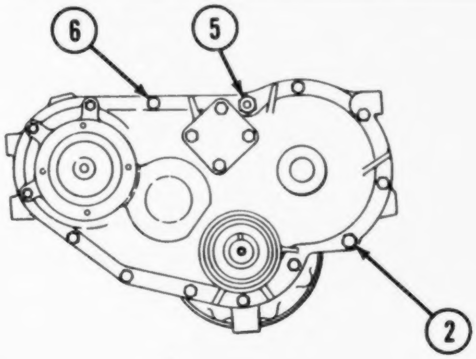
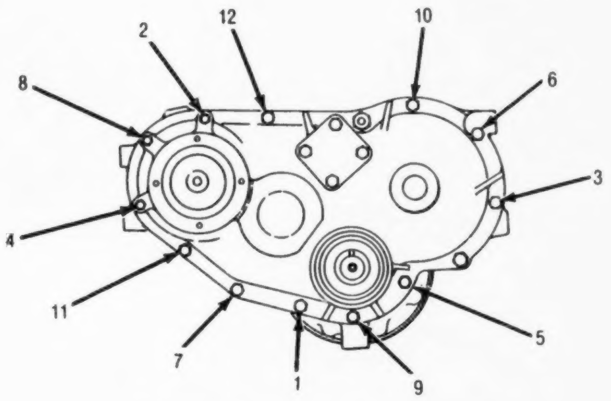
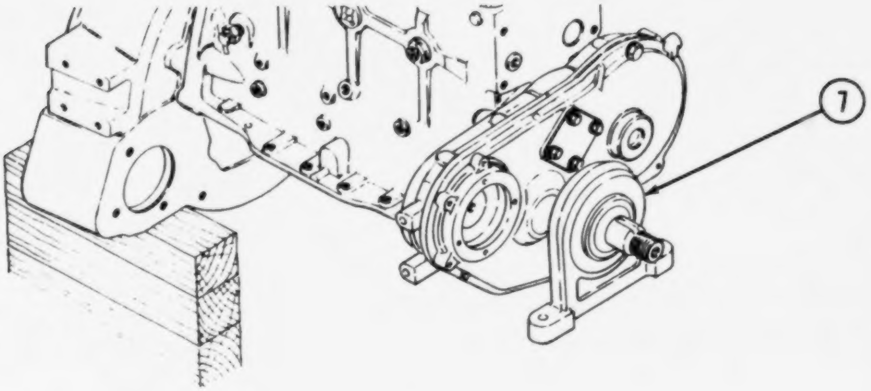
30. TORQUE NUT AND 13 SCREWS ON GEAR HOUSING COVER.
    - Torque nut (5) to 15 ft lb (2.1 mkg). Use 3/4 inch socket with 3/8 inch drive torque wrench.
    - Torque screw (2) to 15 ft lb (2.1 mkg). Use 3/4 inch socket with 3/8 inch drive torque wrench.
    - Torque 12 screws (6) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with 3/8 inch drive torque wrench. (See following Gear Housing Cover Torquing Sequence.)





Gear Housing Cover Torquing Sequence

31. INSTALL FRONT ENGINE SUPPORT (7) ON ENGINE.



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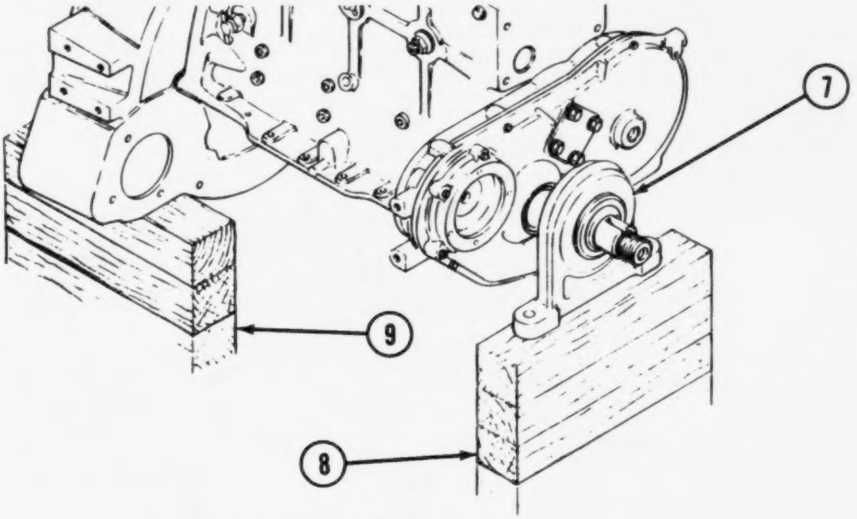
32. POSITION WOOD BLOCKS UNDER FRONT ENGINE SUPPORT.
- Raise engine approximately 1/2 in. (1.3 cm). Use hoist.
- Position wood blocks (8) under front engine support (7).
- Lower engine onto wood blocks (8). Use hoist. Engine should be level and firmly supported by the wood blocks (9) and (8).



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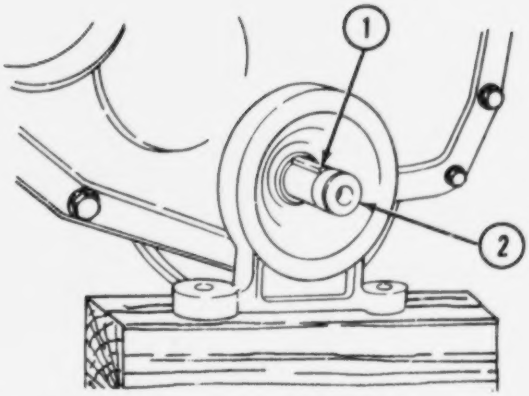
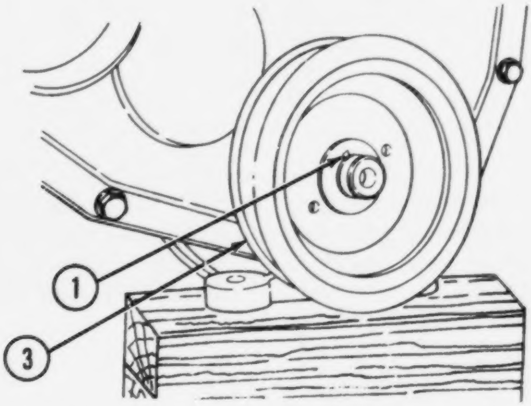
B. REASSEMBLY — Continued

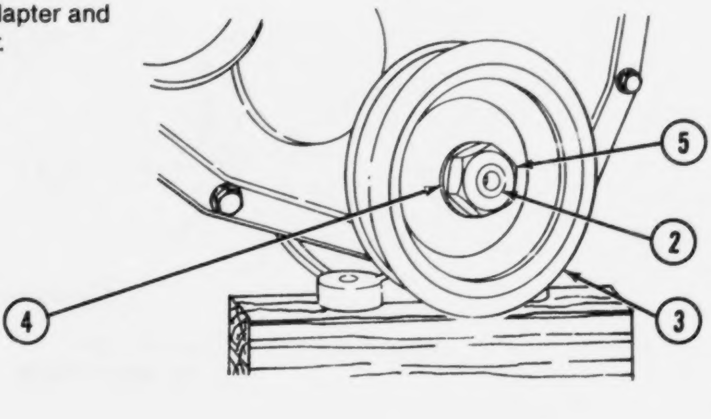
33. INSTALL CRANKSHAFT PULLEY ON CRANKSHAFT.
    - Install woodruff key (1) on crankshaft (2). Use soft faced hammer.



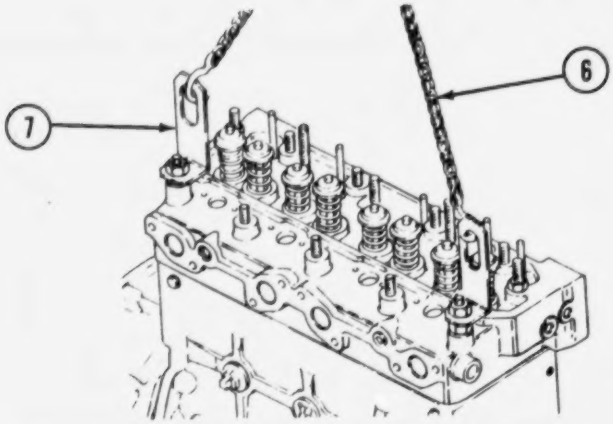
- Install pulley (3) over woodruff key (1). Use soft faced hammer.



- Install new lock washer (4) and nut (5) on crankshaft (2). Use 1 5/8 inch socket with 3/4 inch drive ratchet handle.
- Hold pulley (3). Use strap wrench. Torque nut (5) to 125 ft lb (17.3 mkg). Use 1 5/8 inch socket with socket wrench adapter and 1/2 inch torque wrench. Use helper.



34. REMOVE ENGINE AND TRANSMISSION SLING (6) FROM TWO LIFTING EYES (7).



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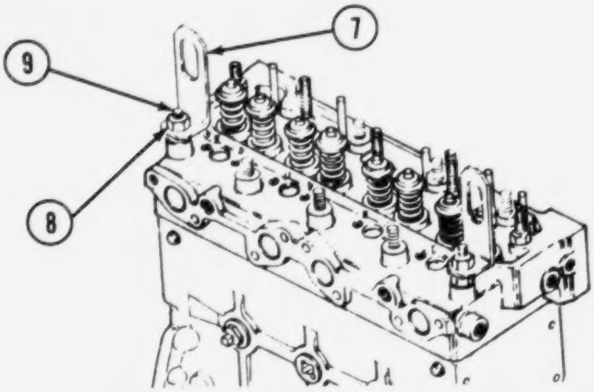
35. REMOVE TWO LIFTING EYES FROM CYLINDER HEAD STUDS.
    - Remove two nuts (8) and lifting eyes (7) from studs (9). Use 7/8 inch socket with 5 inch extension and ratchet handle.



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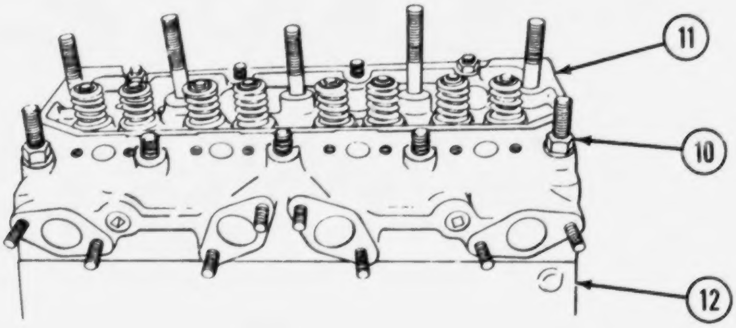
36. REMOVE CYLINDER HEAD FROM ENGINE CYLINDER BLOCK.
    - Remove four nuts (10) and cylinder head (11) from block (12). Use 7/8 inch deep socket with ratchet handle.



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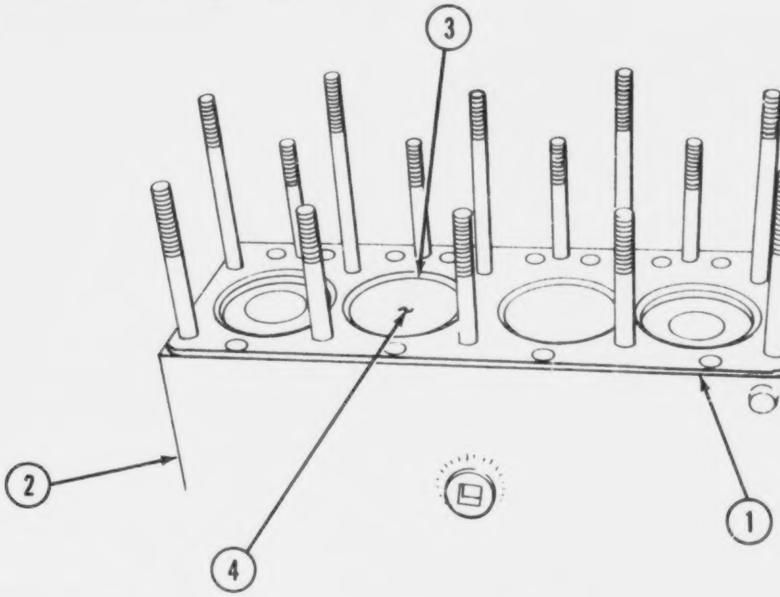
B. REASSEMBLY — Continued

37. INSTALL NEW CYLINDER HEAD GASKET ON ENGINE CYLINDER BLOCK.
    - Install new cylinder head gasket (1) on block (2), with four rolled beads (3) around four combustion chambers (4) and facing down.



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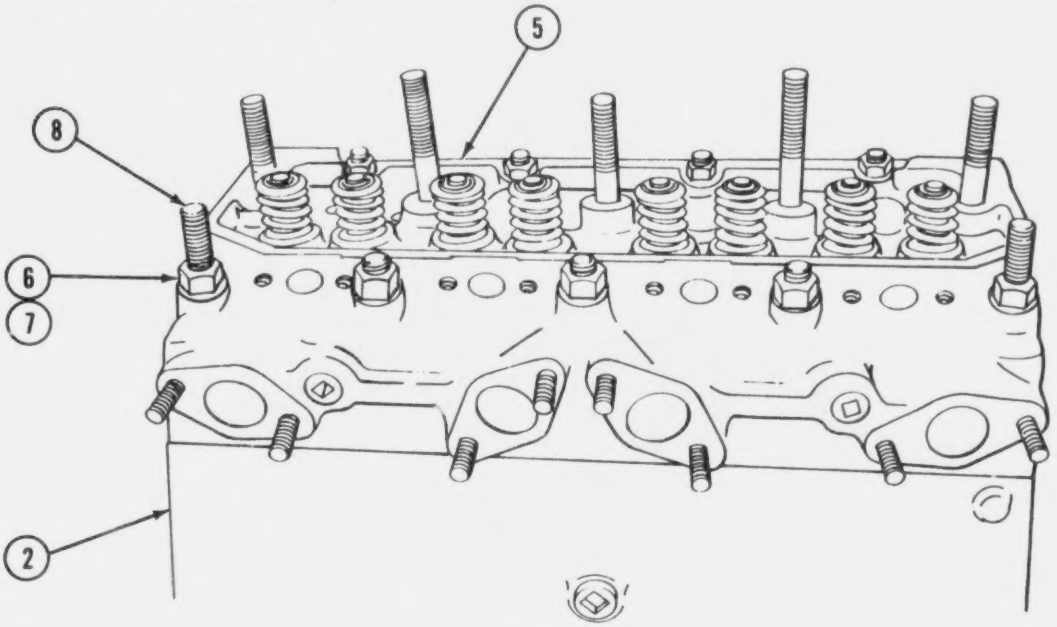
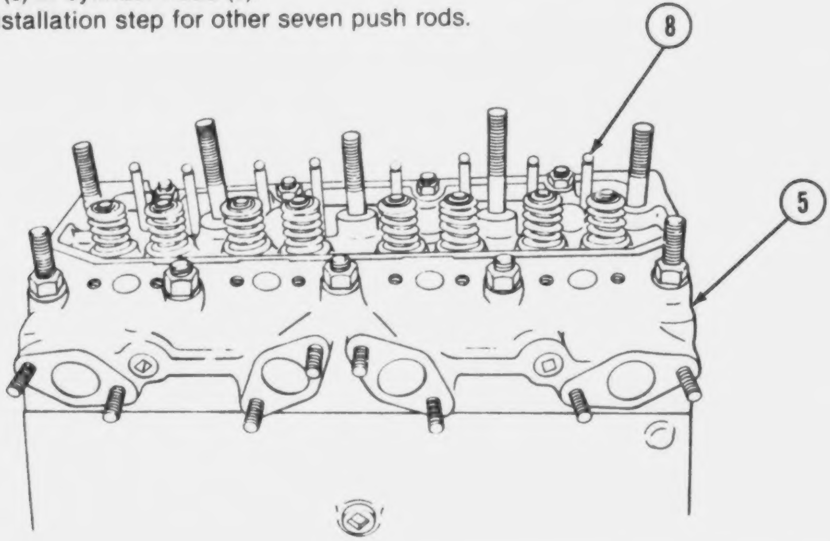
38. INSTALL CYLINDER HEAD ASSEMBLY ON ENGINE CYLINDER BLOCK.
    - Place cylinder head (5) on block (2). Use helper.
    - Install nine washers (6) and nuts (7) on cylinder head studs (8). Use 7/8 inch deep socket with ratchet handle. Do not tighten.



NOTE

Remove tag from each push rod before installation.

39. INSTALL EIGHT PUSH RODS IN CYLINDER HEAD ASSEMBLY.
    - Remove tag from push rod (8).
    - Install push rod (8) in cylinder head (5).
    - Repeat above installation step for other seven push rods.



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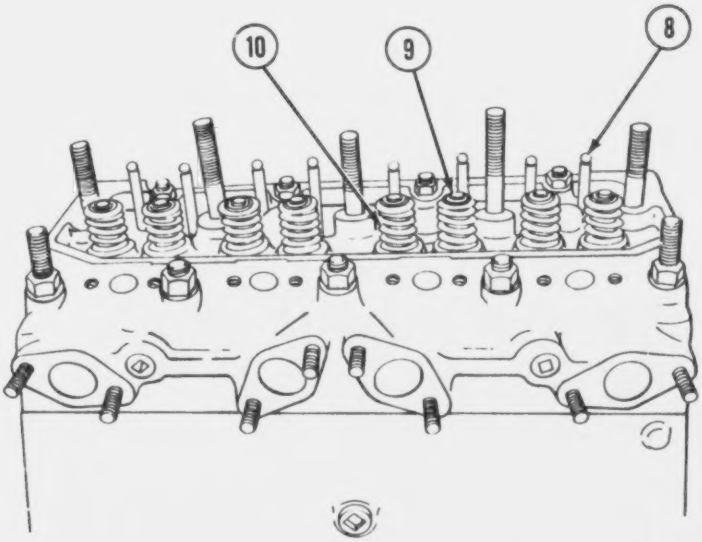
40. LUBRICATE EIGHT VALVES AND PUSH RODS.
    - Pour oil over eight valves (9), springs (10), and push rods (8). Use hand oiler.
    - Wipe up excess oil. Use rags.



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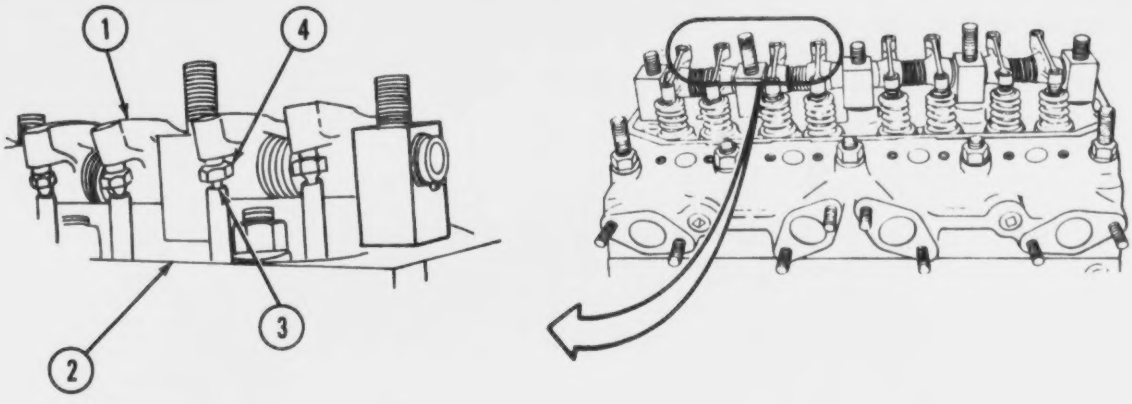
B. REASSEMBLY — Continued

41. POSITION ROCKER ARM ASSEMBLY (1) ON CYLINDER HEAD ASSEMBLY (2) WITH BALL ENDS OF EIGHT PUSH RODS (3) SEATED IN CUPS OF EIGHT ROCKER ARM ADJUSTING SCREWS (4).



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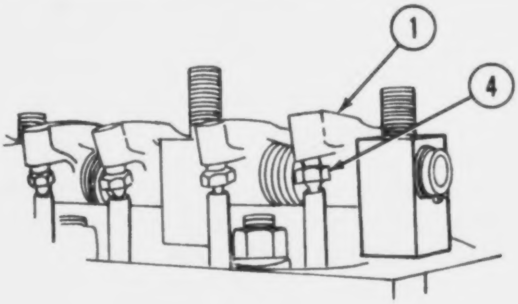
42. SET EIGHT ROCKER ARM ASSEMBLY ADJUSTING SCREWS.
    - Turn screw (4) in rocker arm assembly (1) to right until screw stops turning. Do not force screw to turn.
    - Repeat above setting step for other seven screws.



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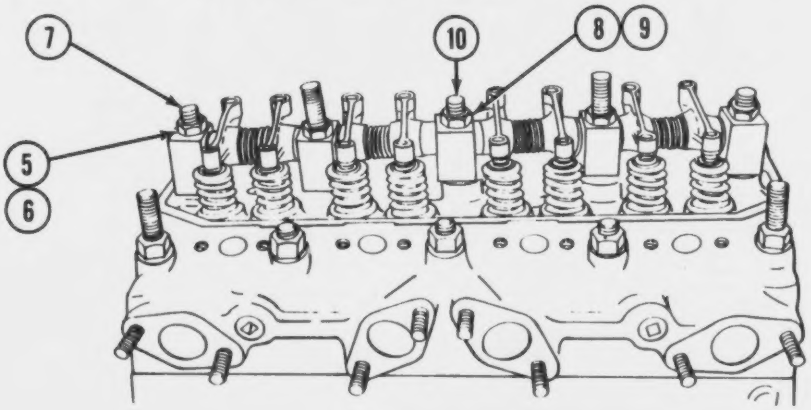
43. INSTALL FIVE WASHERS AND CYLINDER HEAD ASSEMBLY MOUNTING NUTS ON STUDS.
    - Install washer (5) and nut (6) on stud (7).
    - Install four washers (8) and nuts (9) on studs (10).



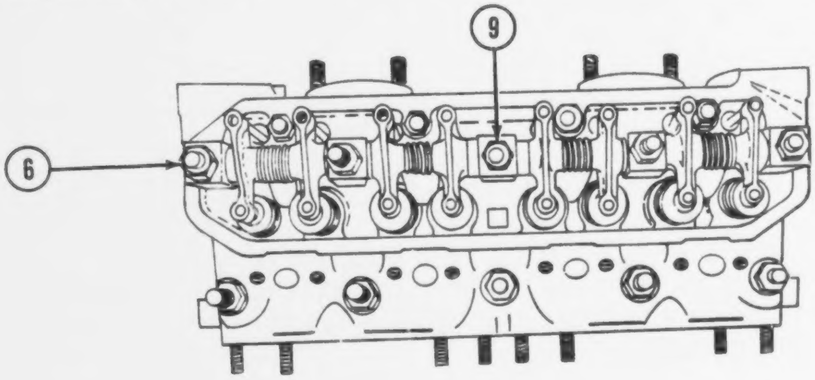
CAUTION

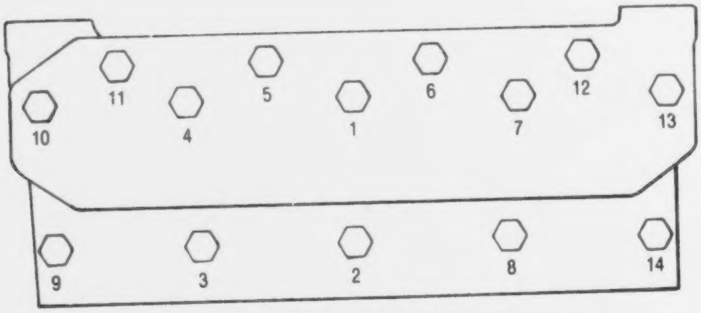
Engine can be damaged if cylinder head mounting nuts are not torqued correctly. Torque mounting nuts according to following Cylinder Head Torquing Sequence.

NOTE

Mounting nut at torque position 10 requires a 15/16 inch socket and more torque than other mounting nuts. Other mounting nuts require a 7/8 inch deep socket.

44. TORQUE 14 CYLINDER HEAD MOUNTING NUTS.
- Torque nut (6) and 13 nuts (9) to 75 ft lb (10.4 mkg). (See following Cylinder Head Torquing Sequence.) Use 15/16 inch socket and 7/8 inch deep socket with 1/2 inch torque wrench.
- Torque nut (6) and 13 nuts (9) to 125 ft lb (17.3 mkg). (See following Cylinder Head Torquing Sequence.) Use 15/16 inch socket and 7/8 inch deep socket with 1/2 inch drive torque wrench.
- Torque nut (6) and 13 nuts (9) to 147 ft lb (20.3 mkg). (See following Cylinder Head Torquing Sequence.) Use 15/16 inch socket and 7/8 inch deep socket with 1/2 inch drive torque wrench.
- Torque nut (6) to 160 ft lb (22.1 mkg). Use 15/16 inch socket with 1/2 inch drive torque wrench.





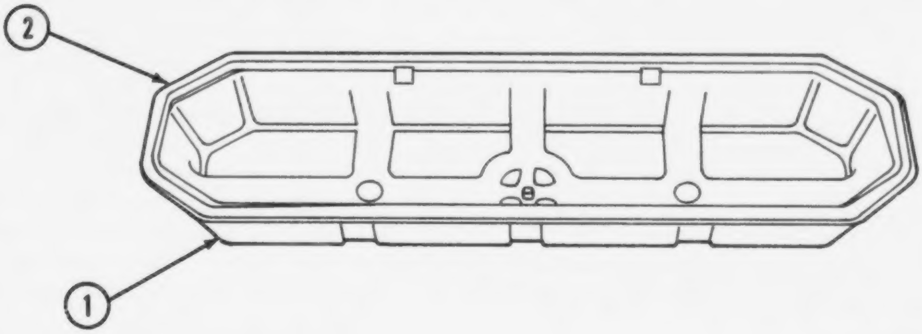
Cylinder Head Torquing Sequence

45. ADJUST ROCKER ARM ASSEMBLY. (SEE ROCKER ARM ASSEMBLY, PAGE 15-199.)

GO TO NEXT PAGE

B. REASSEMBLY — Continued

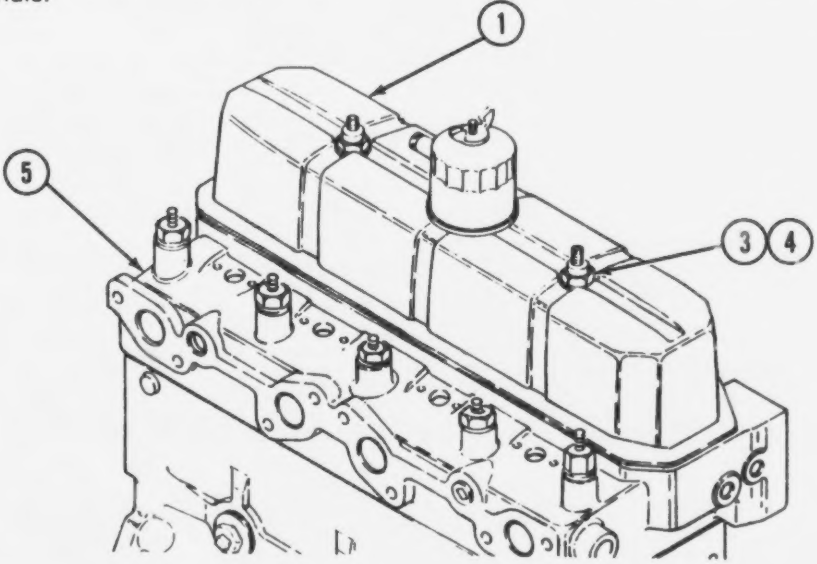
46. INSTALL NEW GASKET ON CYLINDER HEAD VALVE COVER.
    - Apply thin coat of adhesive cement evenly to mating surfaces on cover (1) and one side of new gasket (2).
    - Install gasket (2) on cover (1).



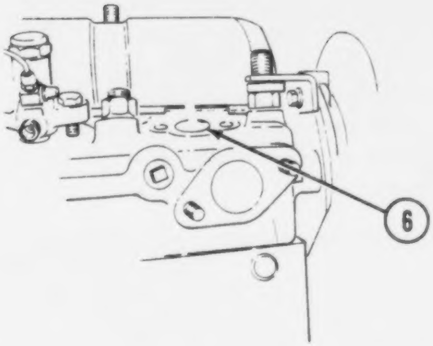
NOTE

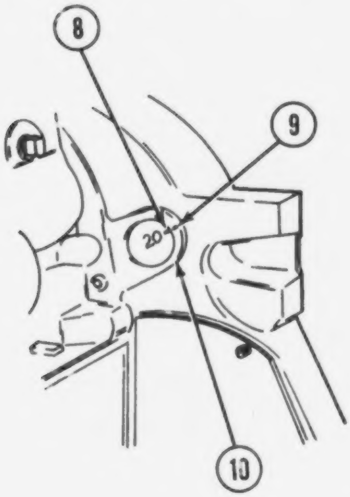
Notched edge of cylinder head valve cover mounts on exhaust side of engine.

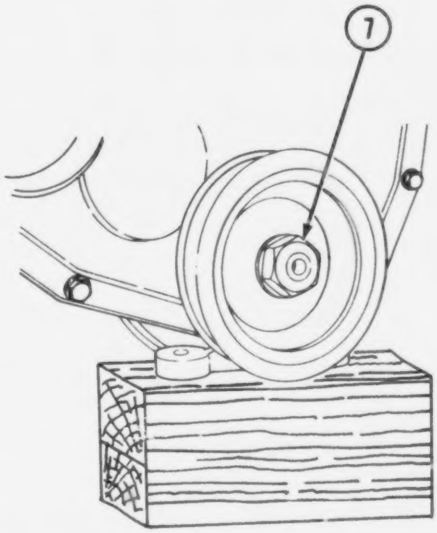
47. INSTALL CYLINDER HEAD VALVE COVER ON CYLINDER HEAD ASSEMBLY.
    - Install cover (1), two washers (3), and nut (4) on cylinder head assembly (5). Use 7/8 inch socket with ratchet handle.



48. SET NUMBER ONE CYLINDER AT 20° BEFORE TOP DEAD CENTER ON COMPRESSION STROKE.
    - Place thumb over number one cylinder fuel nozzle bore (6).
    - Turn crankshaft nut (7) to right until air is forced from fuel nozzle bore (6), and flywheel 20° timing mark (8) is alined with timing line (9) on bell housing (10). Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.







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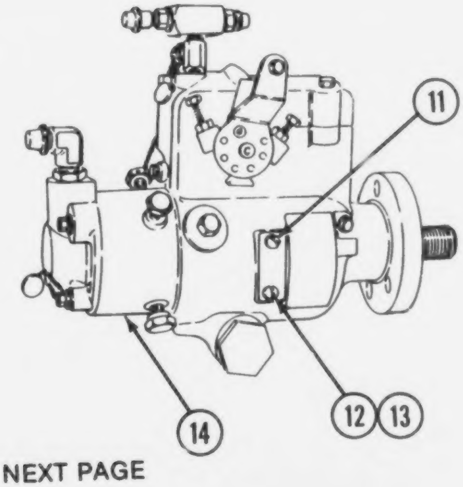
49. REMOVE TIMING COVER FROM FUEL INJECTION PUMP.
    - Remove two screws (11), cover (12), and cover gasket (13) from pump (14). Use 1/4 inch flat tip screwdriver. Discard gasket.



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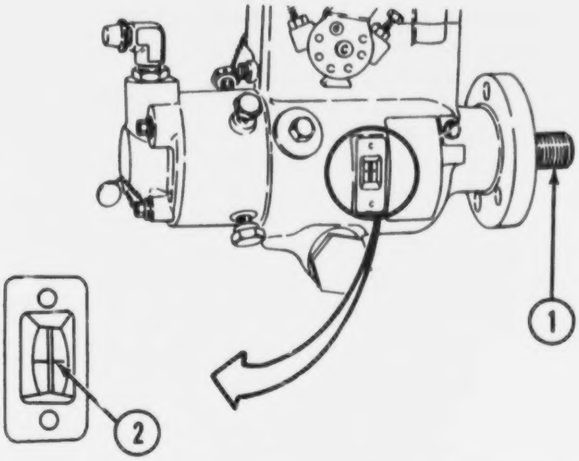
B. REASSEMBLY — Continued

CAUTION

Fuel injection pump can be damaged if internal parts are turned the wrong way. Turn fuel injection pump drive shaft to right only.

50. ALINE TIMING LINES IN FUEL INJECTION PUMP.
    - Turn fuel injection pump drive shaft (1) to right until timing lines (2) are alined.



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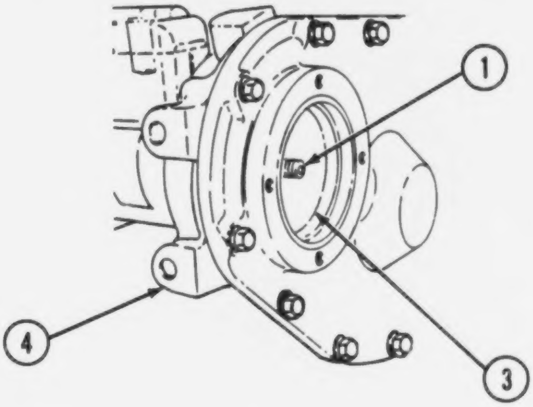
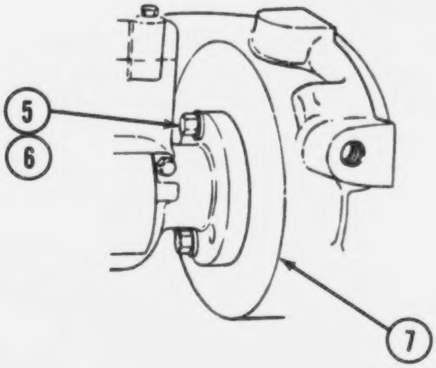
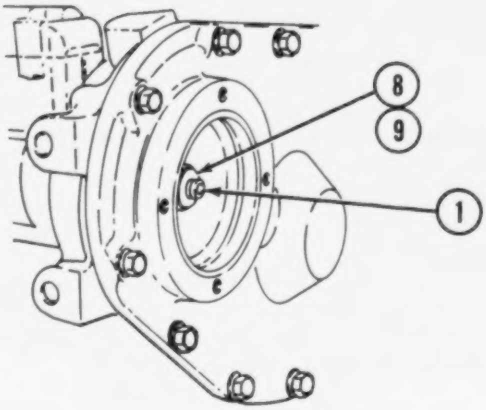
51. INSTALL FUEL INJECTION PUMP ON GEAR HOUSING.
    - Install fuel injection pump drive shaft (1) through fuel injection pump drive gear (3) in gear housing (4).



- Install two washers (5) and screws (6) on pump (7).



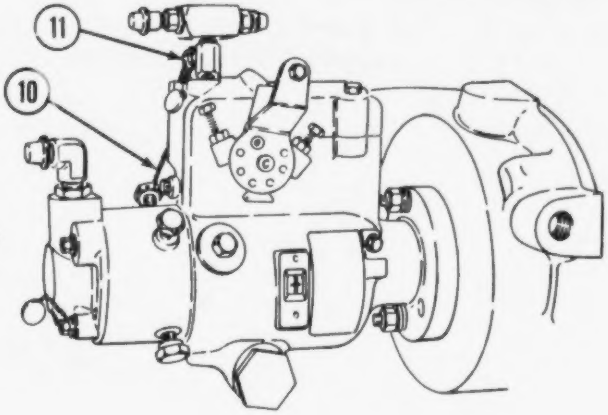
- Install new lock washer (8) and nut (9) on fuel injection pump drive shaft (1). Use 7/8 inch socket with ratchet handle. Do not tighten.
- Torque nut (9) to 65 ft lb (9.0 mkg). Use 7/8 inch socket with 1/2 inch drive torque wrench.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

52. REMOVE SAFETY WIRE FROM THROTTLE CONTROL LEVER.
    - Cut and remove safety wire (10) from lever (11). Use diagonal cutting pliers. Discard safety wire.



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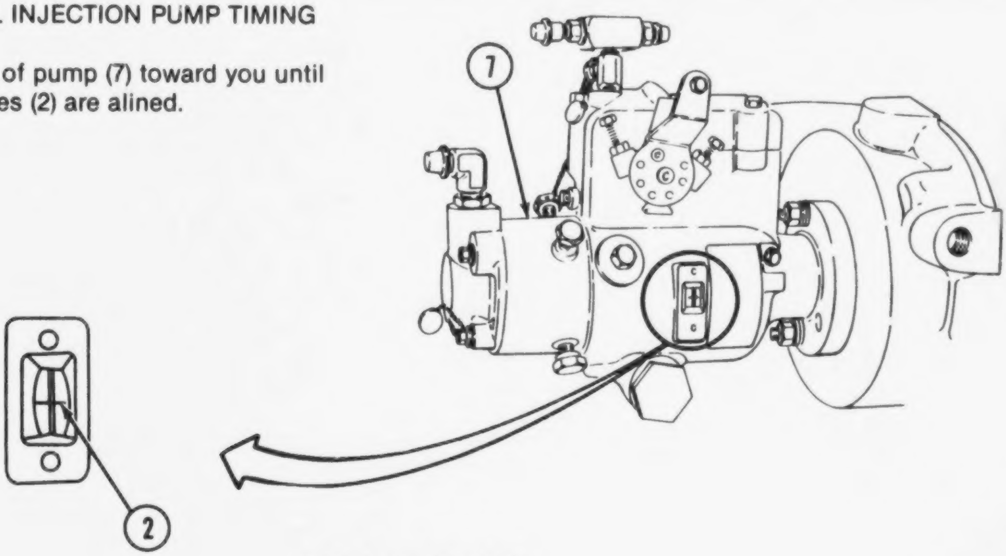
53. ALINE FUEL INJECTION PUMP TIMING LINES.
    - Move top of pump (7) toward you until timing lines (2) are alined.



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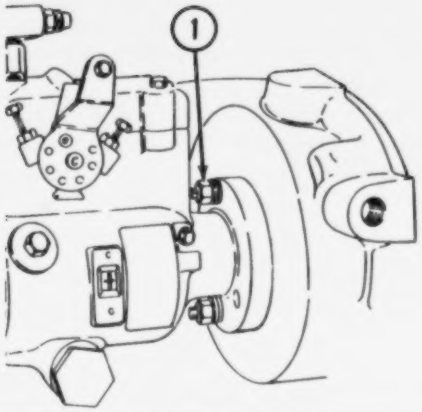
B. REASSEMBLY — Continued

NOTE

Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

54. TORQUE FUEL INJECTION PUMP SCREWS.
    - Torque two screws (1) to 15 ft lb (2.1 mkg). Use 9/16 inch crowfoot attachment with 3/8 inch drive torque wrench.



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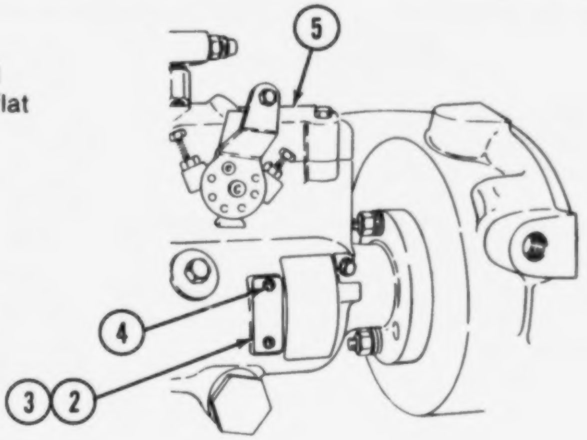
55. INSTALL TIMING COVER ON FUEL INJECTION PUMP.
    - Install new cover gasket (2), cover (3), and two screws (4) on pump (5). Use 1/4 inch flat tip screwdriver.



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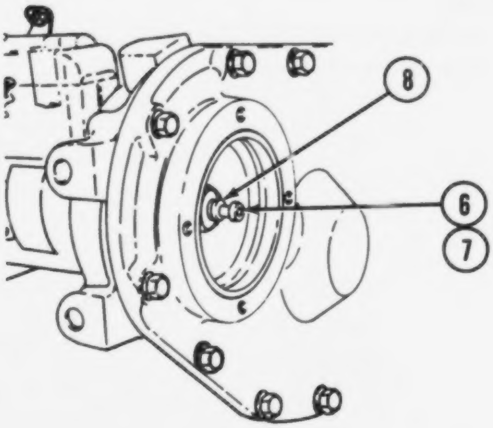
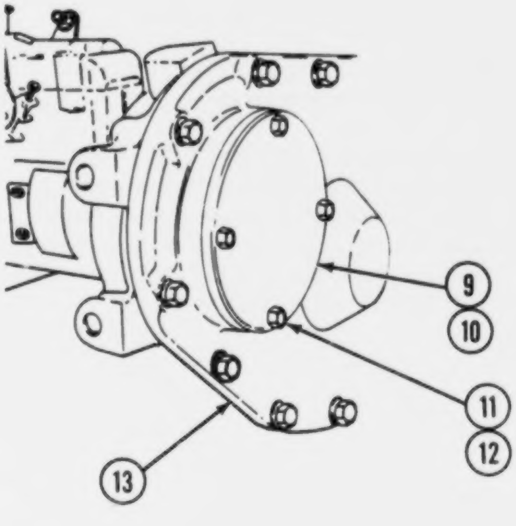
56. INSTALL SPRING (6) AND THRUST PLUG (7) ON FUEL INJECTION PUMP DRIVE SHAFT (8).



57. INSTALL THRUST PLATE ON GEAR HOUSING.
    - Install new plate gasket (9), thrust plate (10), four new copper gaskets (11), and screws (12) on gear housing cover (13). Use 9/16 inch socket with ratchet handle.



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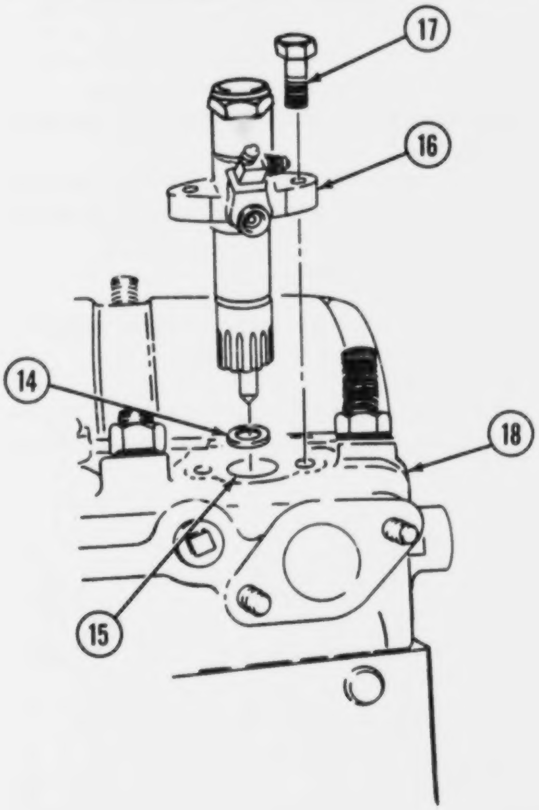
58. INSTALL FOUR FUEL NOZZLE ASSEMBLIES ON CYLINDER HEAD.
    - Install new injector sleeve washer (14) in fuel nozzle bore (15).
    - Install fuel nozzle assembly (16) and two screws (17) on cylinder head (18).
    - Torque two screws (17) to 20 ft lb (2.8 mkg). Use 9/16 inch socket with 5 inch extension and 1/2 inch drive torque wrench.
    - Remove tag from fuel nozzle assembly (16).
    - Repeat above installation steps for other three fuel nozzle assemblies.

59. INSTALL INTAKE MANIFOLD ON ENGINE. (SEE INTAKE MANIFOLD, PAGE 15-21.)



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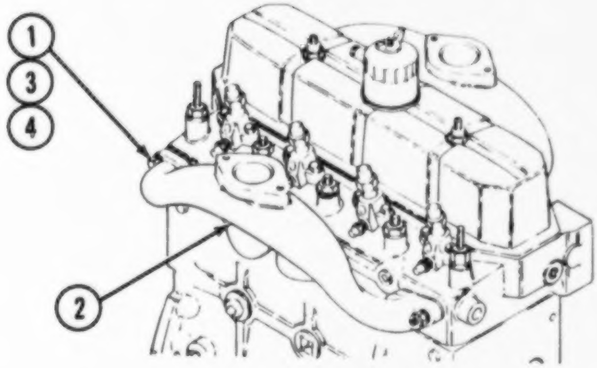
B. REASSEMBLY — Continued

NOTE

Tighten nuts starting at the center and work outward in sequence.

60. INSTALL EXHAUST MANIFOLD ON ENGINE.
    - Install four new gaskets (1), manifold (2), eight washers (3), and nuts (4) on engine.
    - Torque eight nuts (4) to 20 ft lb (2.8 mkg). Use 5/8 inch socket with 5 inch extension and 3/8 inch drive torque wrench.



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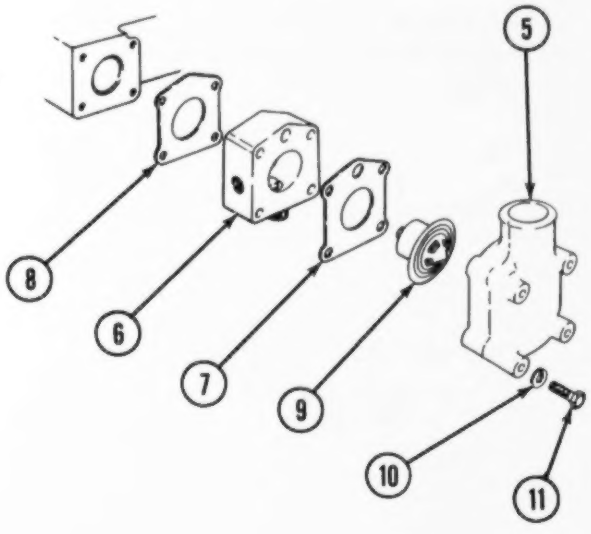
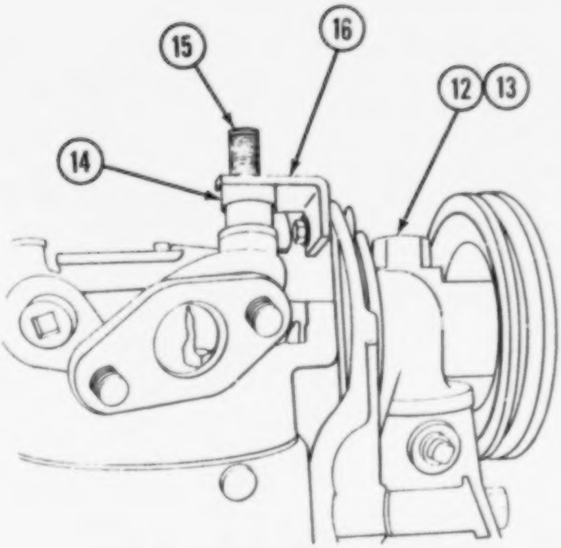
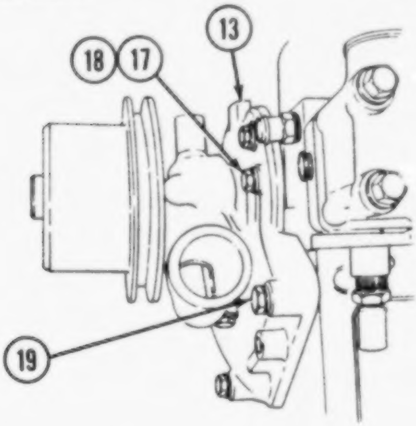
61. INSTALL GASKET, SPACER, GASKET, THERMOSTAT, AND THERMOSTAT HOUSING ON ENGINE.
    - Apply adhesive cement to mating surfaces on housing (5), spacer (6), gasket (7), gasket (8), and engine.
    - Install thermostat (9), gasket (7), spacer (6), and gasket (8) on housing (5).
    - Install housing (5), four new lock washers (10), and screws (11) on engine.
    - Torque four screws (11) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.



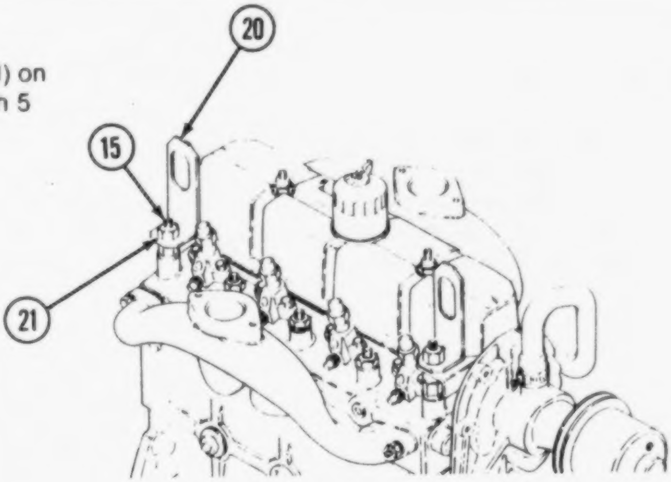
62. INSTALL WATER PUMP ASSEMBLY ON ENGINE.
    - Apply adhesive cement to side of new gasket (12) that mates with water pump assembly (13).
    - Install new gasket (12) on water pump assembly (13) with mounting holes alined.
    - Install flat washer (14) on cylinder head stud (15).
    - Position water pump assembly (13) on engine with mounting bracket (16) on cylinder head stud (15) and mounting holes alined.
    - Install water pump assembly (13), new lock washer (17), and screw (18) on engine. Use 5/8 inch box end wrench.
    - Tighten screw (19). Use 5/8 inch box end wrench.



EXHAUST MANIFOLD REMOVED FOR CLARITY



63. INSTALL TWO LIFTING EYES ON TWO CYLINDER HEAD STUDS.
    - Install two lifting eyes (20) and nuts (21) on two studs (15). Use 7/8 inch socket with 5 inch extension and ratchet handle.



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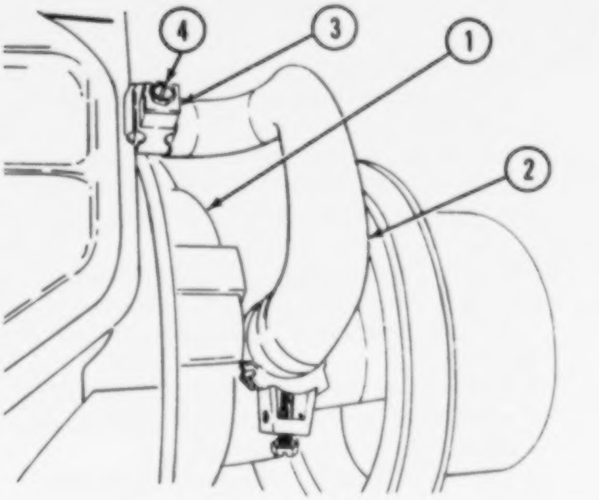
5. REASSEMBLY — Continued

64. INSTALL BYPASS HOSE ON ENGINE.
    - Remove plugs from water pump assembly (1) and engine.
    - Connect hose (2) with two clamps (3) to water pump assembly (1) and engine, and tighten two clamp screws (4). Use 1/4 inch flat tip screwdriver.



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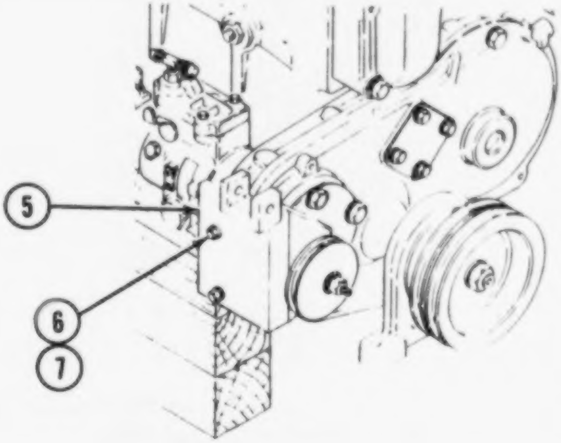
65. INSTALL BRACKET ASSEMBLY ON ENGINE.
    - Install bracket assembly (5), two new lock washers (6), and screws (7) on engine. Use 3/4 inch socket with ratchet handle.



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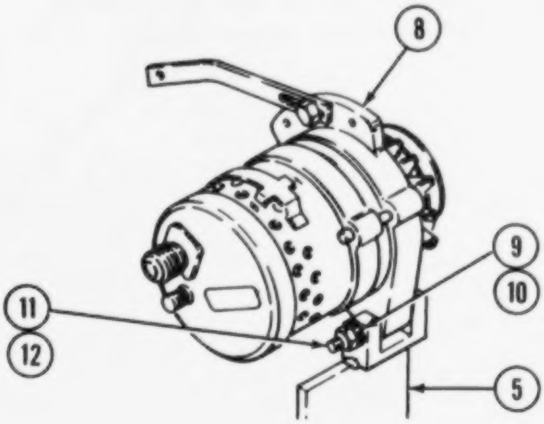
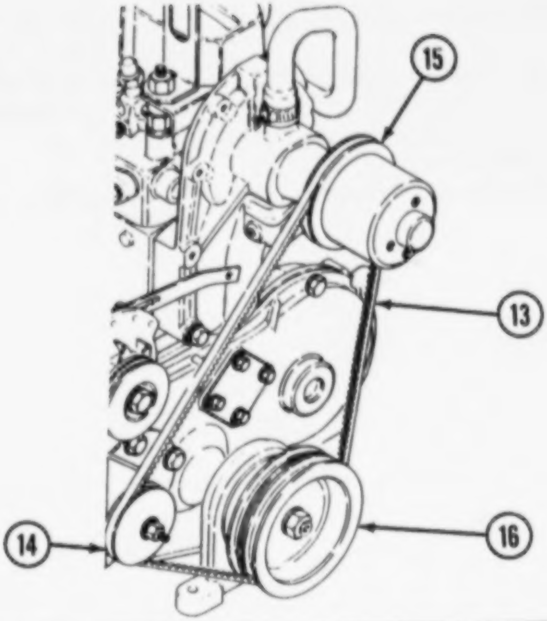
66. INSTALL ALTERNATOR WITH ADJUSTING STRAP ATTACHED ON BRACKET ASSEMBLY.
    - Install alternator (8), washer (9), screw (10), new lock washer (11), and nut (12) on bracket assembly (5). Use 3/4 inch box end wrench and 3/4 inch socket with ratchet handle. Do not tighten.



67. INSTALL FAN BELT ON ENGINE.
    - Install fan belt (13) on idler pulley (14), fan pulley (15), and crankshaft pulley (16).
    - Slide idler pulley (14) away from engine to secure fan belt (13) in pulley grooves.

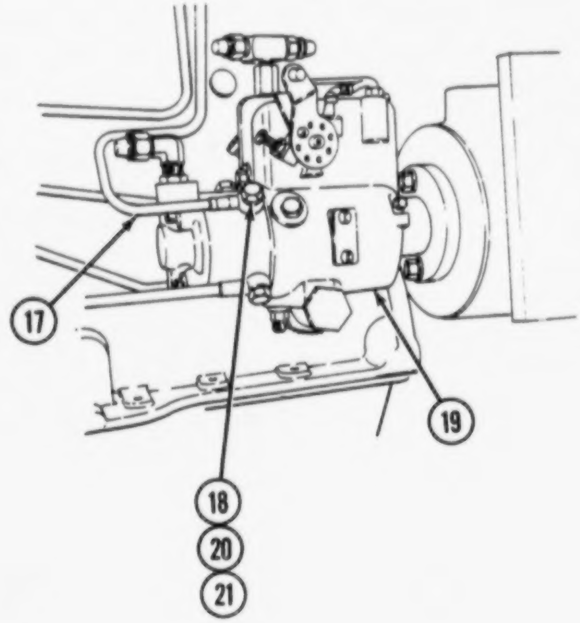
68. ADJUST FAN BELT. (SEE TM 9-1095-205-20.)



WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

69. INSTALL FOUR FUEL INJECTION TUBES ON ENGINE.
    - Remove plug from front tube (17).
    - Remove screw (18) from fuel injection pump (19).
    - Position front tube (17) on engine.
    - Install new gasket (20), front tube (17), new gasket (21), and screw (18) on fuel injection pump (19).
    - Repeat above installation steps for other front tube and two rear tubes.



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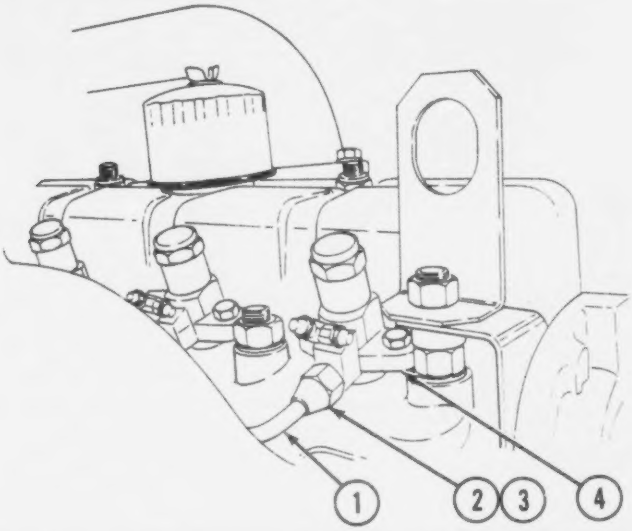
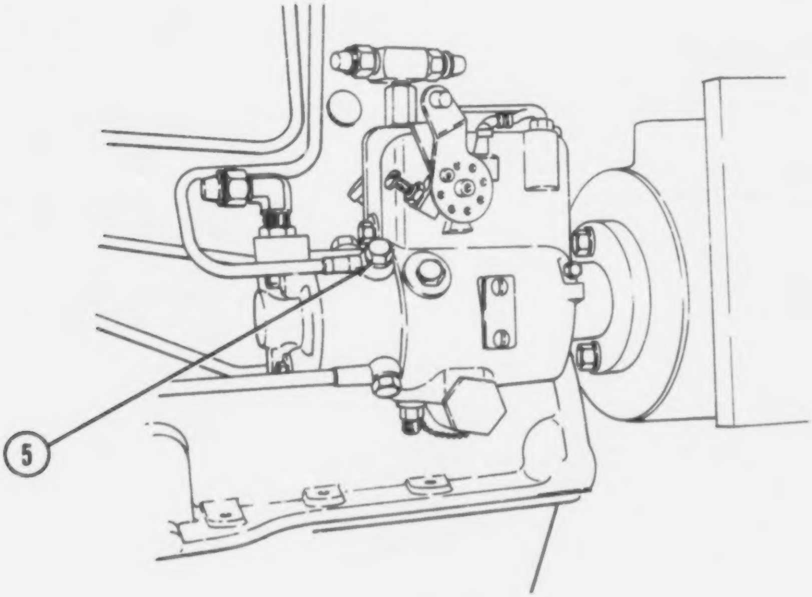
B. REASSEMBLY — Continued

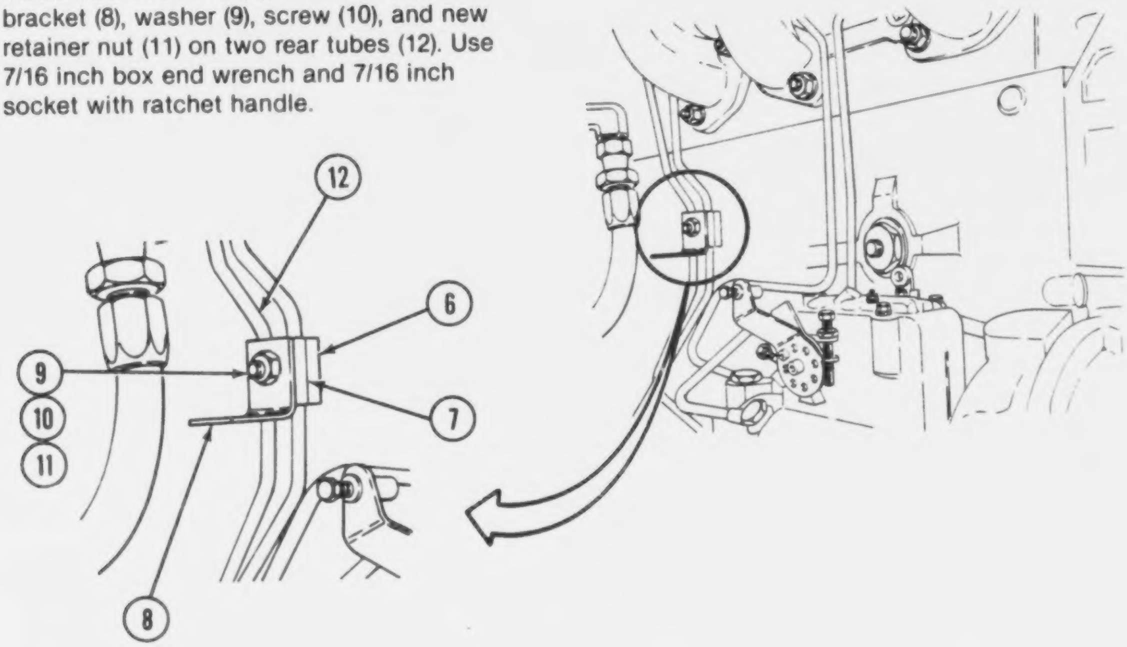
- Remove plug and cap from front tube and fuel nozzle assembly.
- Connect front tube (1) with tube nut (2) and ferrule (3) to fuel nozzle assembly (4). Use 3/4 inch box and open end box wrench.
- Remove tag from tube.
- Repeat above installation steps for other front tube and two rear tubes.



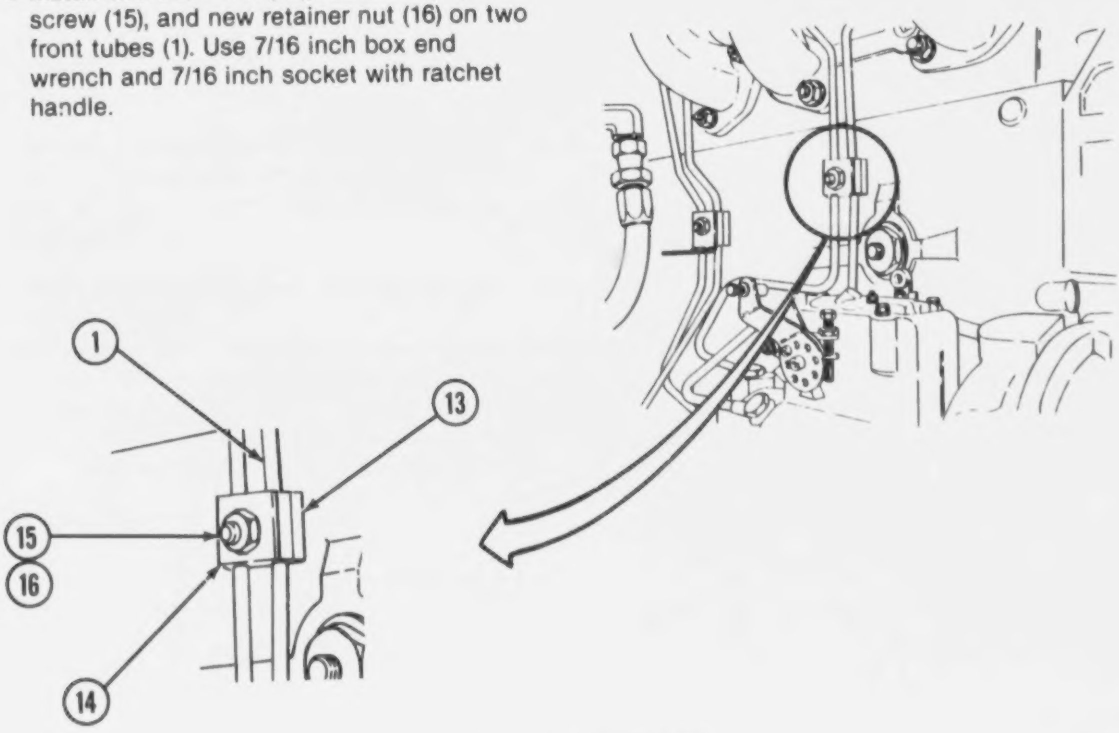
- Torque four screws (5) to 35 ft lb (4.8 mkg). Use 9/16 inch torque wrench adapter with 1/2 inch drive torque wrench.



- Install two cushions (6), retainers (7), bracket (8), washer (9), screw (10), and new retainer nut (11) on two rear tubes (12). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle.



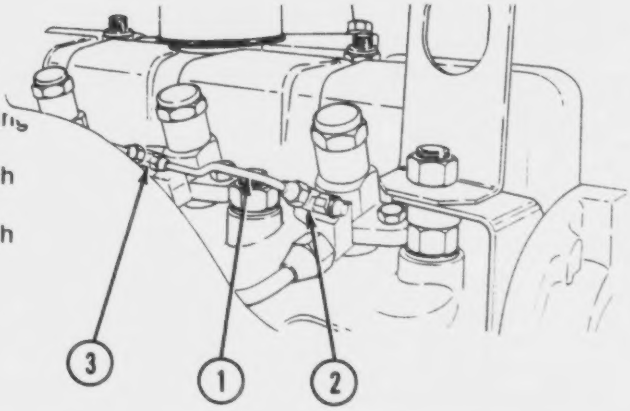
- Install two cushions (13), retainers (14), screw (15), and new retainer nut (16) on two front tubes (1). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle.



GO TO NEXT PAGE

B. REASSEMBLY — Continued

70. INSTALL THREE TOP LEAKOFF TUBES ON ENGINE.
    - Remove plugs and caps from tube (1), fitting (2), and fitting (3).
    - Connect tube (1) to fitting (2). Use 7/16 inch box and open end box wrench.
    - Connect tube (1) to fitting (3). Use 7/16 inch box and open end box wrench.
    - Remove tag from tube (1).
    - Repeat above installation steps for other two tubes.



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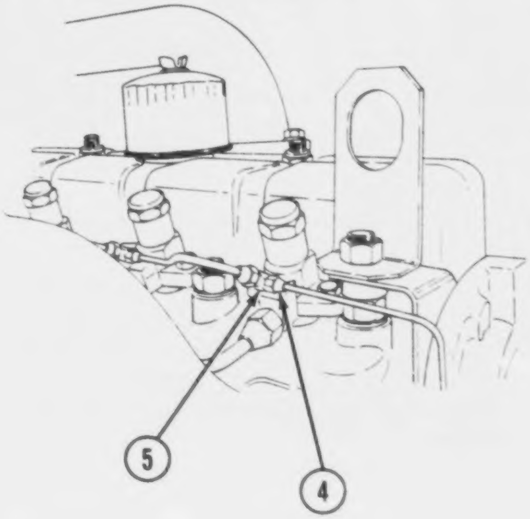
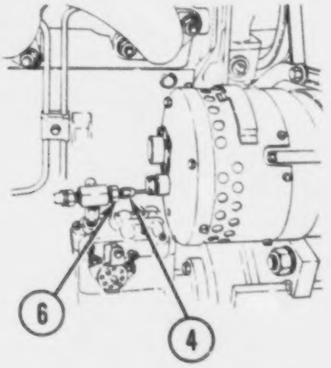
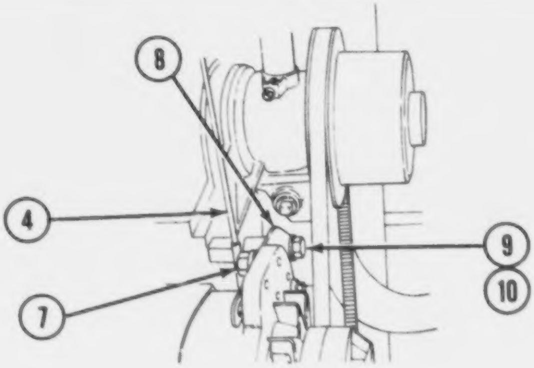
71. INSTALL FRONT LEAKOFF TUBE ON ENGINE.
    - Remove plugs and caps from tube (4), adapter (5), and fitting (6).
    - Connect tube (4) to adapter (5). Use 7/16 inch box and open end box wrench.
    - Connect tube (4) to fitting (6). Use 7/16 inch box and open end box wrench.
    - Remove tag from tube (4).



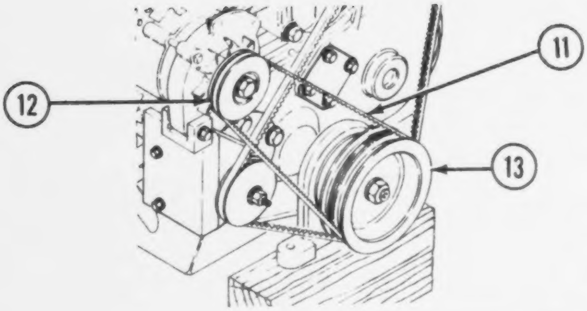


- Position clamp (7) and tube (4) to rear of alternator adjusting strap (8).
- Install clamp (7) with tube (4), spacer (8), new lock washer (9), and screw (10) on engine. Use 5/8 inch socket with ratchet handle.



72. INSTALL ALTERNATOR DRIVE BELT ON ENGINE.
   - Install belt (11) on alternator pulley (12) and crankshaft pulley (13).

73. ADJUST ALTERNATOR DRIVE BELT. (SEE TM 9-1095-205-20.)



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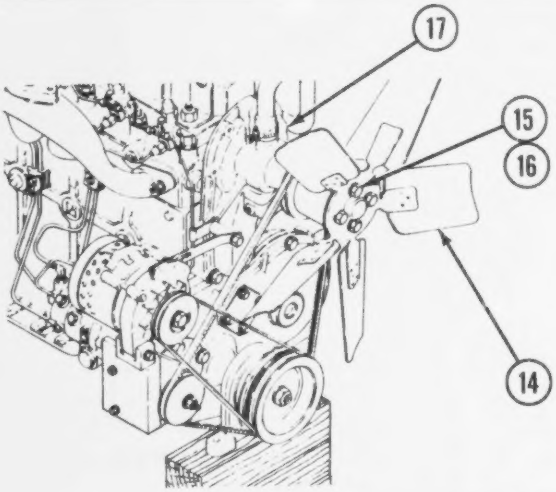
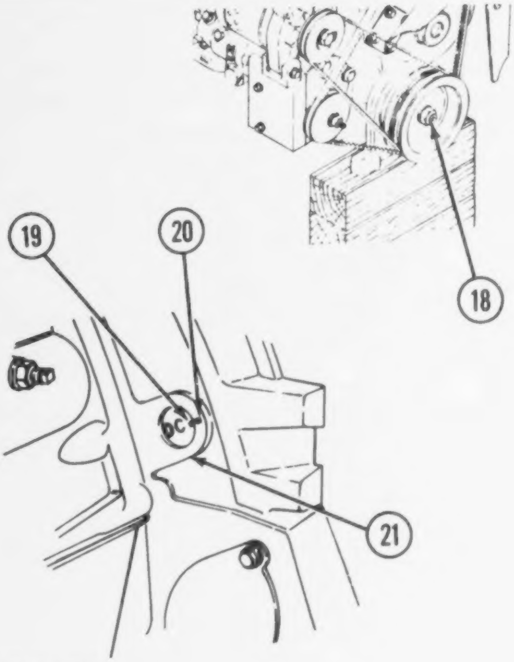
74. INSTALL FAN ON WATER PUMP ASSEMBLY.
   - Install fan (14), four new lock washers (15), and screws (16) on water pump assembly (17). Use 1/2 inch socket with ratchet handle.



NOTE

Number one piston is at top dead center when it is fully extended above crankshaft and DC mark is alined with timing line on bell housing.

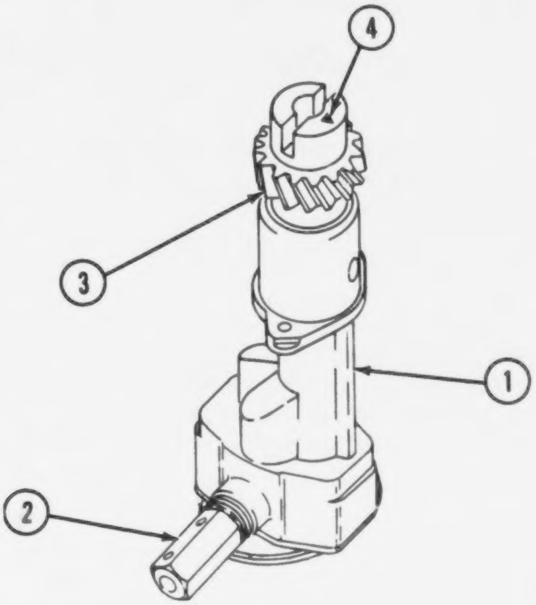
75. POSITION NUMBER ONE PISTON AT TOP DEAD CENTER.
   - Turn crankshaft (18) to right until DC mark (19) is in line with timing line (20) on bell housing (21) and number one piston is top dead center. Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.



GO TO NEXT PAGE

B. REASSEMBLY — Continued

76. POSITION ROTARY OIL PUMP ASSEMBLY FOR INSTALLATION.
    - Turn oil pump (1) until regulator (2) points to front of engine.
    - Turn pump gear (3) until arrow (4) on top of pump gear points to left side of engine.



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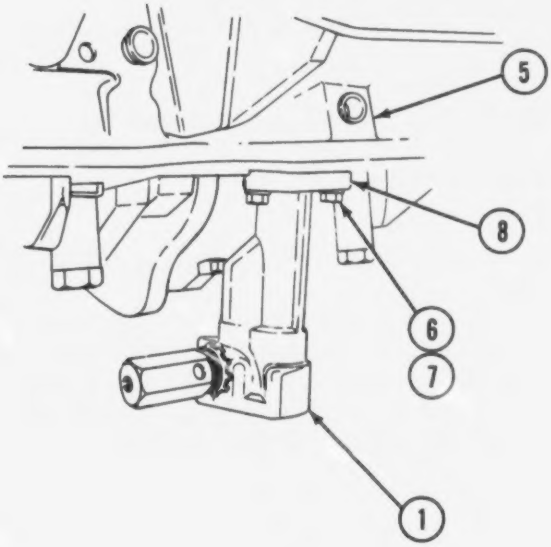
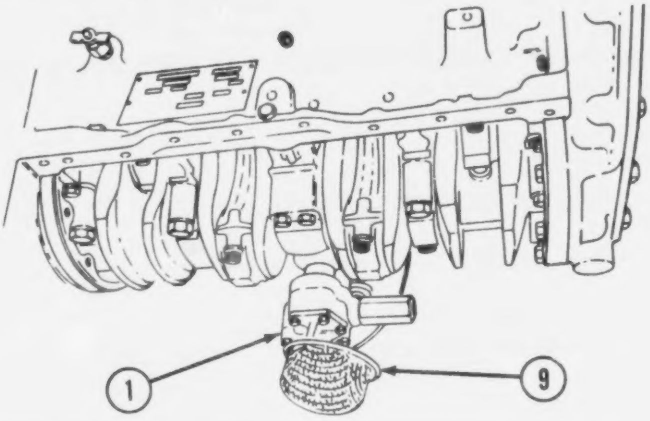
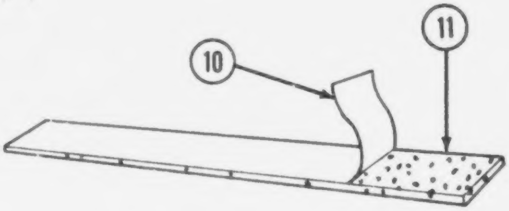
77. INSTALL ROTARY OIL PUMP ASSEMBLY IN ENGINE CYLINDER BLOCK.
    - Position oil pump (1) in cylinder block (5) with mounting holes alined.
    - Install oil pump (1), two new lock washers (6), and screws (7) on oil pump mounting flange (8).
    - Torque two screws (7) to 25 ft lb (3.5 mkg). Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.

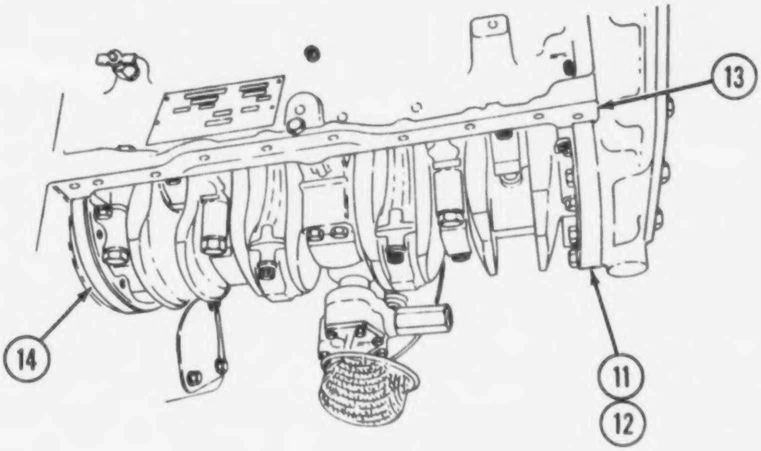


78. INSTALL ROTARY OIL PUMP STRAINER ON ROTARY OIL PUMP ASSEMBLY.
    - Install strainer (9) on oil pump (1).



79. INSTALL TWO NEW OIL PAN ASSEMBLY END SEALS ON FRONT AND REAR ADAPTERS.
    - Remove protective cover (10) from new end seal (11). Discard protective covering.
    - Install end seal (11) on front adapter (12). Make sure both ends of seal contact oil pan gaskets (13).
    - Repeat above installation steps for rear adapter (14).





GO TO NEXT PAGE

B. REASSEMBLY — Continued

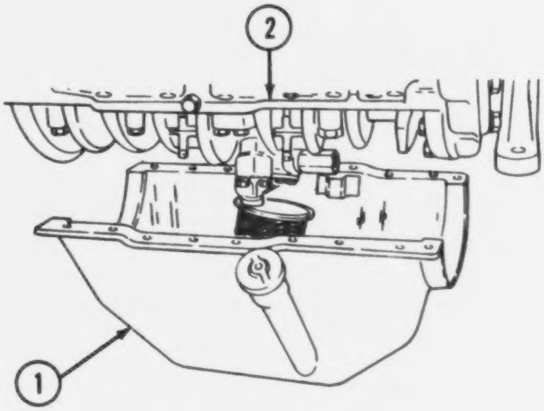
CAUTION

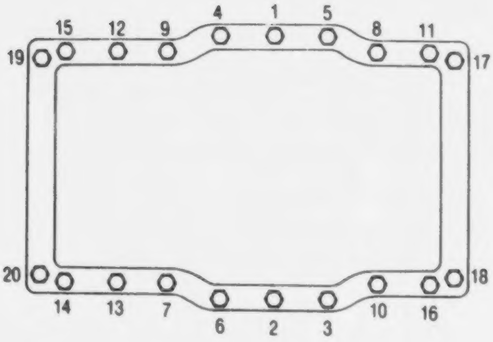
Oil pan flange can be damaged if oil pan falls. Support oil pan during oil pan removal.

NOTE

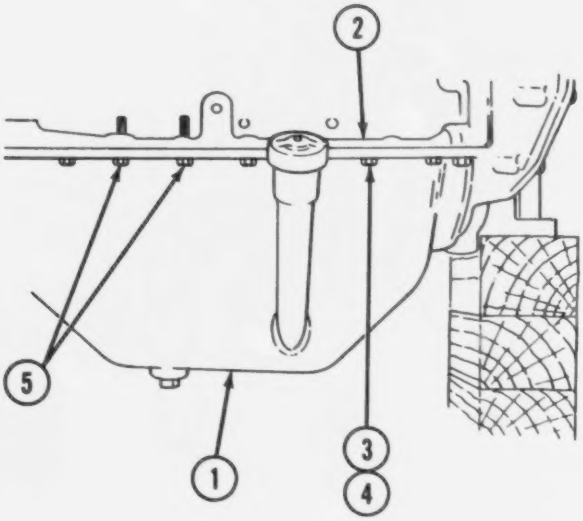
Two long screws are for mounting engine control bracket assembly.

80. INSTALL OIL PAN ASSEMBLY ON ENGINE CYLINDER BLOCK.
    - Position oil pan (1) under block (2).
    - Install oil pan (1), 20 new lock washers (3), 18 screws (4), and two long screws (5) on block (2). Use helper.
    - Torque 18 screws (4) and two long screws (5) to 20 ft lb (2.8 mkg). (See following Oil Pan Torquing Sequence.) Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.





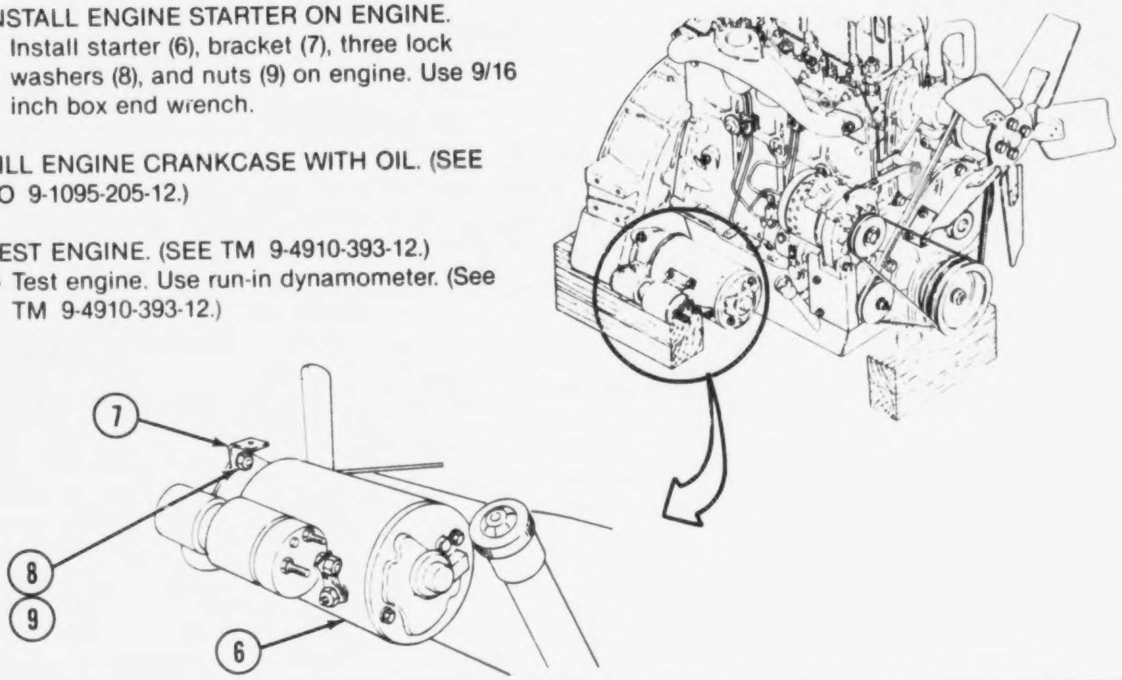
Oil Pan Torquing Sequence



81. INSTALL ENGINE STARTER ON ENGINE.
    - Install starter (6), bracket (7), three lock washers (8), and nuts (9) on engine. Use 9/16 inch box end wrench.

82. FILL ENGINE CRANKCASE WITH OIL. (SEE LO 9-1095-205-12.)

83. TEST ENGINE. (SEE TM 9-4910-393-12.)
    - Test engine. Use run-in dynamometer. (See TM 9-4910-393-12.)



END OF TASK

19-5 FLYWHEEL AND RING GEAR

DESCRIPTION

This task covers:
A. FLYWHEEL AND RING GEAR REMOVAL (p 19-78)
B. RING GEAR REMOVAL (p 19-78)
C. RING GEAR INSTALLATION (p 19-79)
D. FLYWHEEL AND RING GEAR INSTALLATION (p 19-79)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit 5180-00-177-7033:
  - Aligning punch
  - Pry bar
  - 3/4 inch socket
  - Ball peen hammer
  - Ratchet handle
- 1/2 inch drive 3/4 inch impact socket 5130-00-221-8010
- Electric impact wrench kit 5130-00-221-0607
- Electric oven 4940-00-869-0538
- Torque wrench 5120-00-640-6364
- 3/4 inch drive socket wrench set 5120-00-204-1999:
  - Ratchet handle
  - Hinged handle
  - 1 5/8 inch socket
- Dial indicator with magnetic base
- Gloves
- Wrecker 2320-00-055-9258
- Engine and transmission sling 4910-00-944-4915

Materials/Parts:
Dry ice, Item 5, Appendix B

Personnel Required:
Mechanic
Helper

WARNING

You could be hurt if heavy dispenser parts fall on you. Use helper when you remove or install heavy dispenser parts.

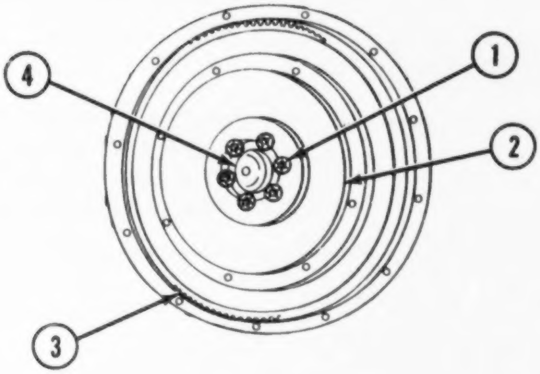
GO TO NEXT PAGE

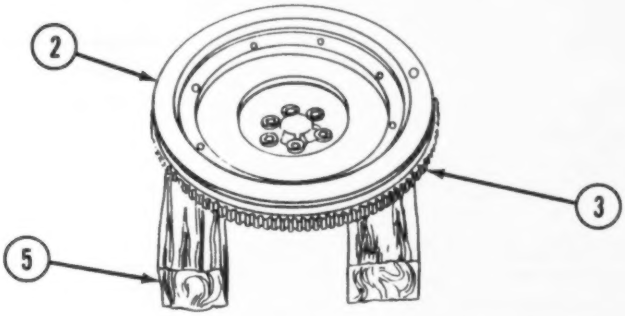
19-5 FLYWHEEL AND RING GEAR — Continued

A. FLYWHEEL AND RING GEAR REMOVAL

REMOVE FLYWHEEL AND RING GEAR FROM CRANKSHAFT.

- Remove six bolts (1) from flywheel (2). Use 3/4 inch socket with 1/2 inch drive impact wrench.
- Remove flywheel (2) and ring gear (3) from crankshaft (4). Use pry bar. Use helper.
- Place flywheel (2) on two wood blocks (5), with ring gear (3) down. Use engine and transmission sling with wrecker. Use helper.





B. RING GEAR REMOVAL

WARNING

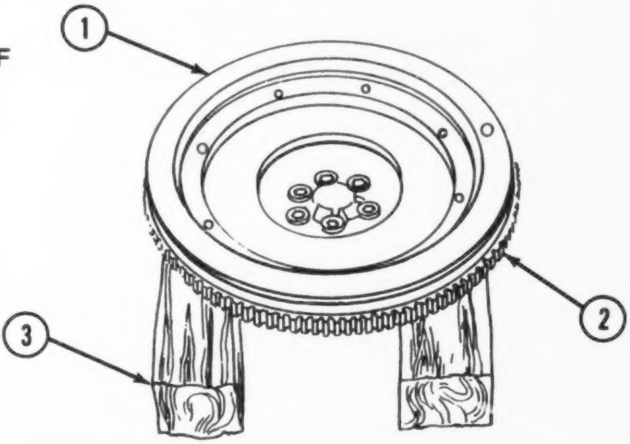
Extremely cold and hot parts can injure you. Use gloves when handling extremely cold and hot parts.

NOTE

Do not remove ring gear unless required for maintenance.

REMOVE RING GEAR FROM FLYWHEEL.

- Heat flywheel (1) and ring gear (2) at 450°F (232.2°C) for 2 hours. Use electric oven.
- Place flywheel (1) on two wood blocks (3), with ring gear (2) down. Use engine and transmission sling with wrecker, and gloves. Use helper.
- Tap ring gear (2) to separate ring gear from flywheel (1). Use ball peen hammer.



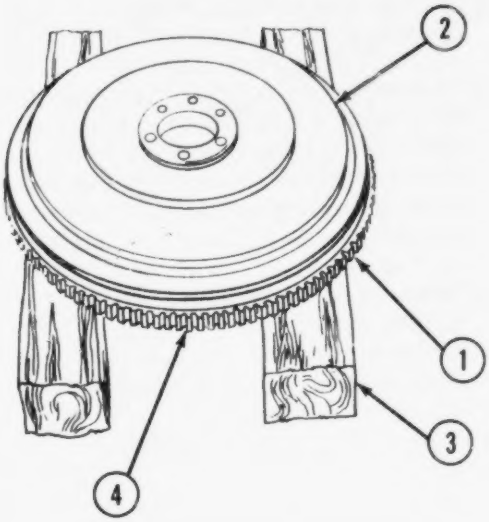
C. RING GEAR INSTALLATION

WARNING

Extremely cold and hot parts can injure you. Use gloves when handling extremely cold and hot parts.

INSTALL RING GEAR ON FLYWHEEL.

- Heat ring gear (1) at 450°F (232.2°C) for 2 hours. Use electric oven.
- Cool flywheel (2) for 2 hours. Use dry ice.
- Place flywheel (2) on two wood blocks (3), with flywheel flange (4) down. Use engine and transmission sling with wrecker, and gloves. Use helper.
- Position ring gear (1) on flywheel flange (4). Use gloves. Use helper.
- Install ring gear (1) on flywheel (2). Use ball peen hammer.

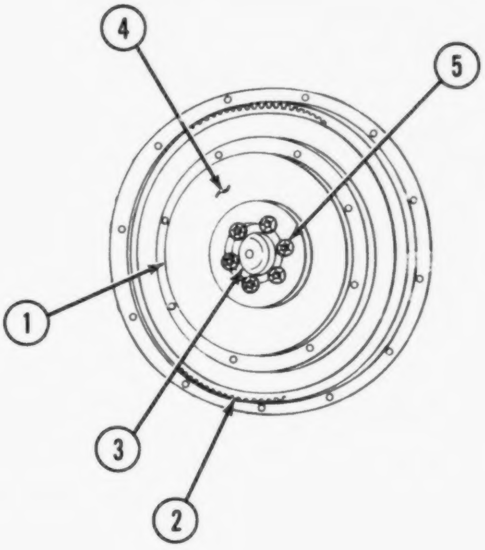


D. FLYWHEEL AND RING GEAR INSTALLATION

NOTE

One mounting hole is off center, to ensure proper alinement.

1. INSTALL FLYWHEEL AND RING GEAR ON CRANKSHAFT.
   - Position flywheel (1) and ring gear (2) on crankshaft (3) with hydraulic pump drive adapter mating surface (4) out. Use engine and transmission sling with wrecker. Use helper.
   - Position flywheel (1) on crankshaft (3) with mounting holes alined. Use pry bar and aligning punch. Use helper.
   - Install six bolts (5) on flywheel (1). Use 3/4 inch socket with ratchet handle.



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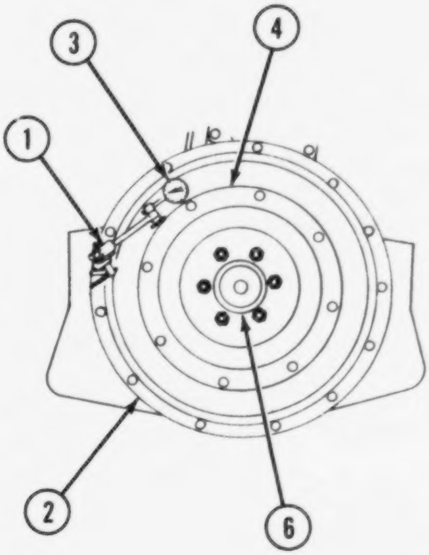
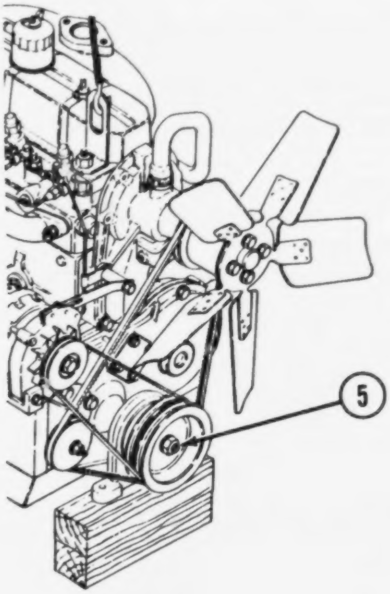
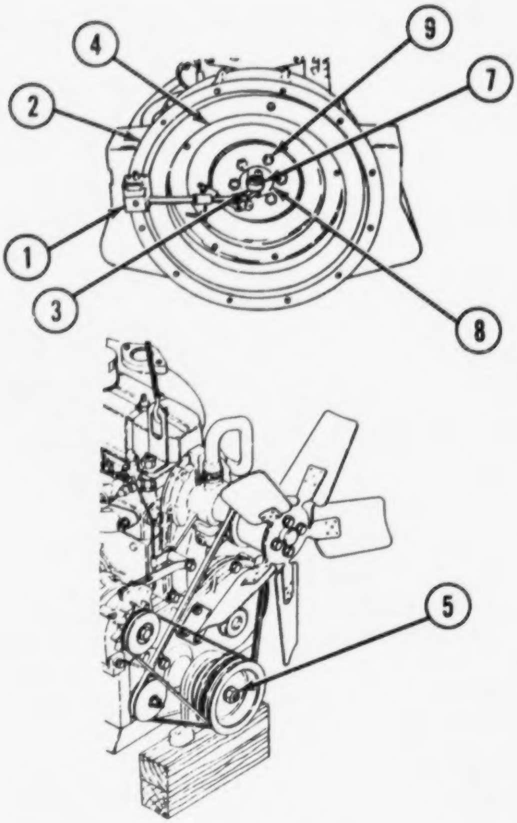
D. FLYWHEEL AND RING GEAR INSTALLATION — Continued

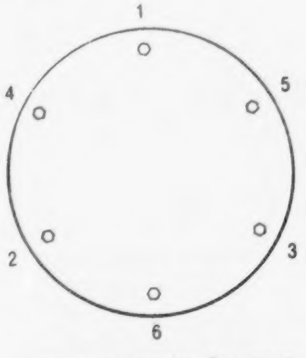
2. CHECK FLYWHEEL ALINEMENT.
   - Position dial indicator bracket (1) on bell housing (2) with foot of dial indicator (3) near outer edge of flywheel (4).
   - Have helper slowly rotate crankshaft front (5) to right for one complete turn. Have helper use 1 5/8 inch socket with universal joint, and 3/4 inch drive hinged handle. While helper rotates crankshaft front, check dial indicator (3) for lowest and highest readings.
   - Remove dial indicator bracket (1) from bell housing (2).
   - If difference between highest and lowest readings is 0.008 in. (0.203 mm) or less, go to step 3.
   - If difference between highest and lowest readings is more than 0.008 in. (0.203 mm), remove flywheel and ring gear from crankshaft. (See Flywheel and Ring Gear, Page 19-78.)
   - Check for foreign material between flywheel (4) and crankshaft (6). Remove any foreign material.
   - Install flywheel and ring gear on crankshaft. (See Flywheel and Ring Gear, Page 19-79.)





3. CHECK CONCENTRICITY OF PILOT BORE.
   - Position dial indicator bracket (1) on bell housing (2) with dial indicator foot (7) on inner face of pilot bore (8).
   - Have helper slowly rotate crankshaft front (5) to right for one complete turn. Have helper use 1 5/8 inch socket with universal joint, and 3/4 inch drive hinged handle. While helper rotates crankshaft front, check dial indicator (3) for lowest and highest readings.
   - Remove dial indicator bracket (1) from bell housing (2).
   - If difference between lowest and highest readings is 0.005 in. (0.127 mm) or less, task is complete.
   - If difference between lowest and highest readings is more than 0.005 in. (0.127 mm), loosen six bolts (9). Use 3/4 inch socket with ratchet handle.
   - Move flywheel (4) as necessary to correct difference between highest and lowest readings.
   - Torque six bolts (9) to 80 ft lb (11.1 mkg). Use 3/4 inch socket with torque wrench. (See following Flywheel Torquing Sequence.)





Flywheel Torquing Sequence

END OF TASK

19-6 BELL HOUSING

DESCRIPTION

This task covers:
A. REMOVAL (p 19-83)
B. INSTALLATION (p 19-90)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - 1/2 inch open end wrench
  - 9/16 inch box end wrench
  - 9/16 inch socket
  - 3/4 inch socket
  - 5 inch extension
  - Ratchet handle
  - Pocket knife
  - Putty knife
  - 1/8 inch drive pin punch
- Measuring tape 5120-00-287-3335
- 1/2 inch drive impact wrench 5130-00-221-0607
- Engine and transmission sling 4910-00-944-4915
- 1000 pound capacity hoist 3950-00-292-9879
- Soft faced hammer 5120-00-903-8553
- Arbor press 3444-00-449-7295
- Micrometer caliper 5210-00-255-7564
- 3/8 inch drive 1/2 inch crowfoot 5120-00-184-8384
- 3/8 inch drive 5 inch extension 5120-00-273-9203
- 3/8 inch drive torque wrench 5120-00-541-3001
- 3/8 inch drive 9/16 inch socket 5120-00-227-6704

Materials/Parts:

- Gasket 5330-00-893-7799
- Gasket 5330-00-678-3821
- Crankshaft seal 5330-01-028-7654
- Oil pan adapter seal (2) 5330-00-649-8437
- Lock washer (3) 5310-00-637-9541
- Lock washer (8) 5310-00-012-0384
- Lock washer (20) 5310-01-133-7241
- Lock washer (2) 5310-01-167-3549
- Lock washer (4) 5305-00-616-5649
- Sealing compound, Item 26, Appendix B
- Adhesive sealant, Item 2, Appendix B
- Rags, Item 22, Appendix B
- Solvent, Item 28, Appendix B
- Lubricating oil, Item 17, Appendix B

Personnel Required:

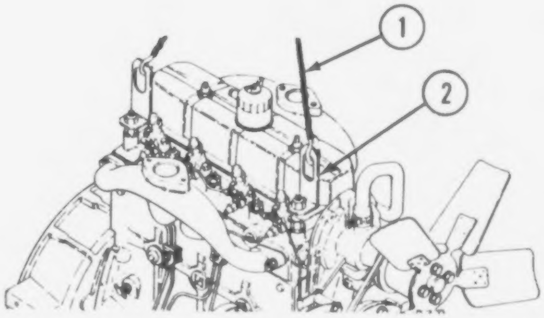
- Mechanic
- Helper

Reference:

FLYWHEEL AND RING GEAR INSTALLATION, Page 19-77

A. REMOVAL

1. ATTACH ENGINE AND TRANSMISSION SLING (1) TO TWO LIFTING EYES (2).



GO TO NEXT PAGE

A. REMOVAL — Continued

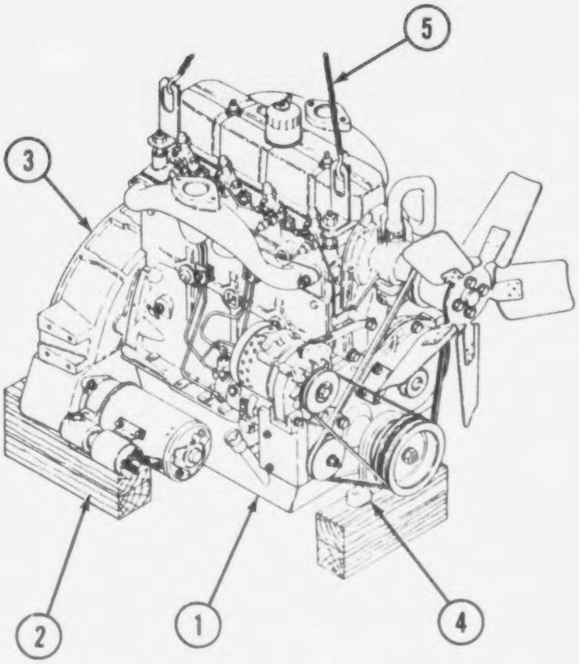
WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

NOTE

Support diesel engine with enough wood blocks to allow a minimum of 7 in. (17.8 cm) clearance under oil pan.

2. POSITION WOOD BLOCKS UNDER ENGINE.
   - Raise engine high enough to allow 7 in. (17.8 cm) of clearance under oil pan (1). Use hoist and measuring tape. Use helper.
   - Position wood blocks (2) under both sides of bell housing (3) and under front engine support (4).
   - Lower engine onto wood blocks (2). Use hoist. Use helper.
   - Release tension in engine and transmission sling (5).



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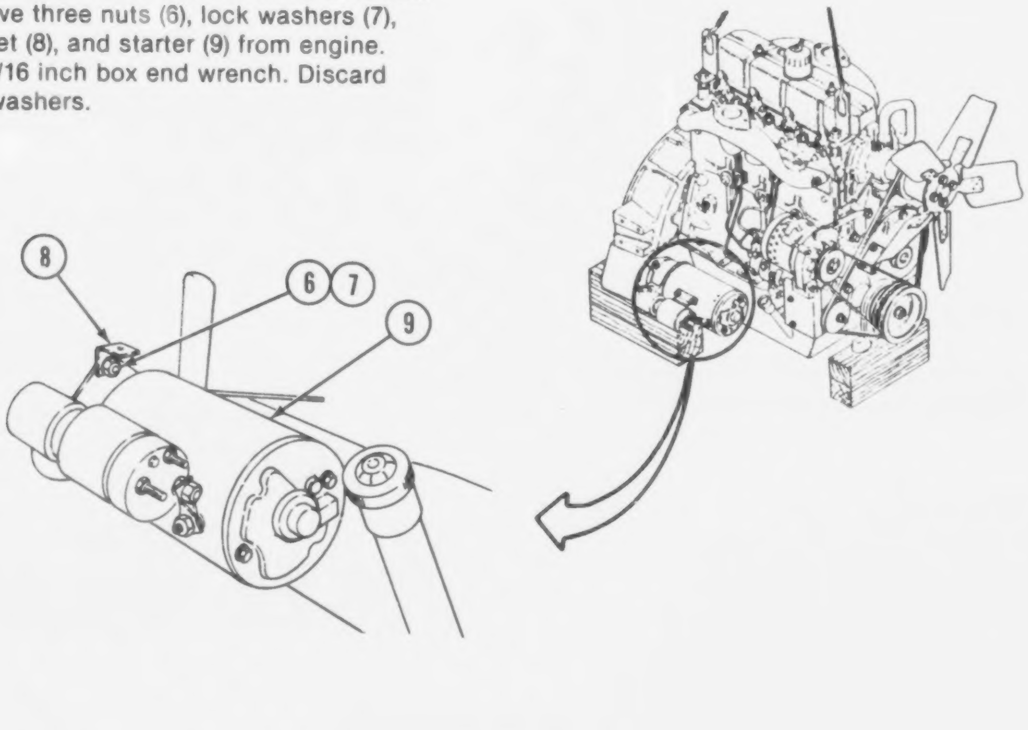
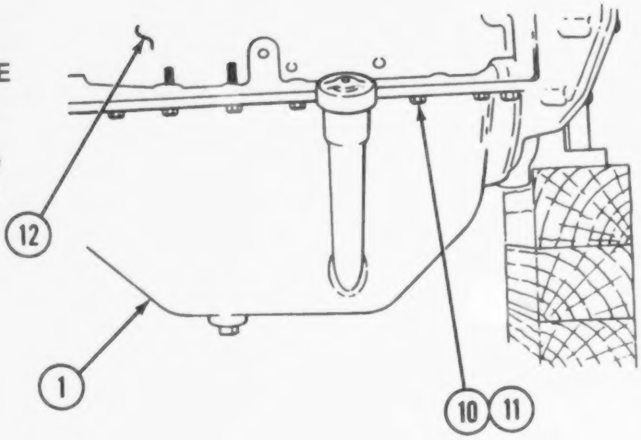
3. REMOVE ENGINE STARTER FROM ENGINE.
   - Remove three nuts (6), lock washers (7), bracket (8), and starter (9) from engine. Use 9/16 inch box end wrench. Discard lock washers.



CAUTION

Oil pan flange can be damaged if oil pan falls. Support oil pan during removal from engine cylinder block.

4. REMOVE OIL PAN ASSEMBLY FROM ENGINE CYLINDER BLOCK.
   - Remove 20 screws (10), lock washers (11), and oil pan (1) from cylinder block (12). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers.

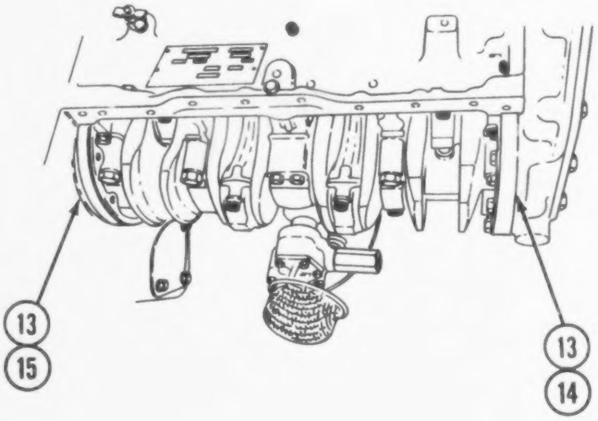


WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

5. REMOVE TWO OIL PAN ASSEMBLY END SEALS FROM FRONT AND REAR ADAPTERS.
   - Remove end seals (13) from front adapter (14) and rear adapter (15). Use putty knife, solvent, and rags. Discard end seals.

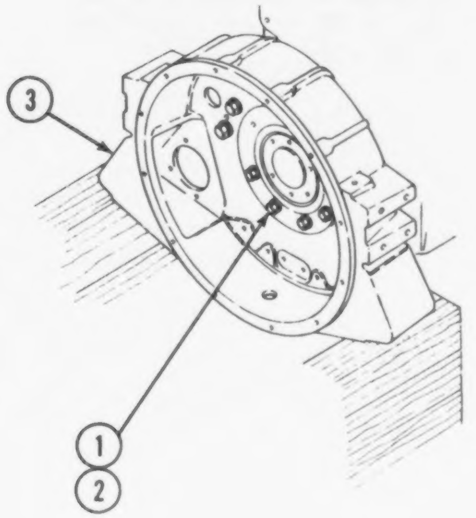
6. REMOVE FLYWHEEL AND RING GEAR FROM CRANKSHAFT. (SEE FLYWHEEL AND RING GEAR INSTALLATION, PAGE 19-77.)



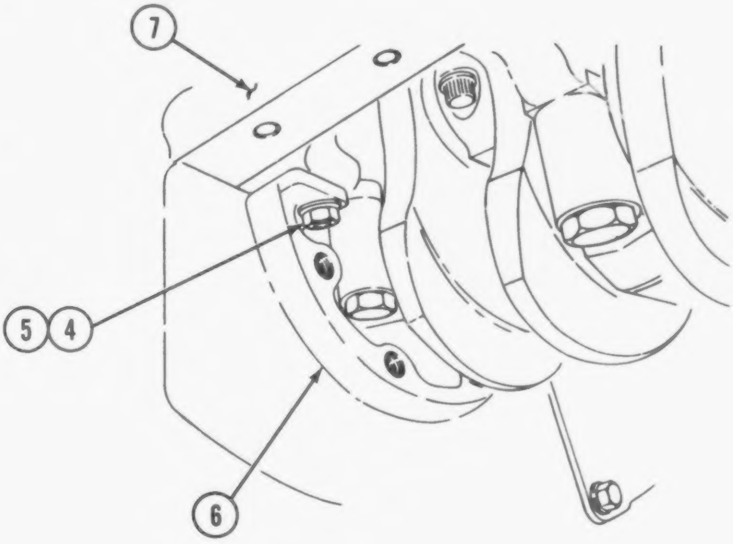
GO TO NEXT PAGE

A. REMOVAL — Continued

7. REMOVE REAR ADAPTER FROM ENGINE AND BELL HOUSING.
   - Remove four adapter mounting screws (1) and lock washers (2) from bell housing (3). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers.



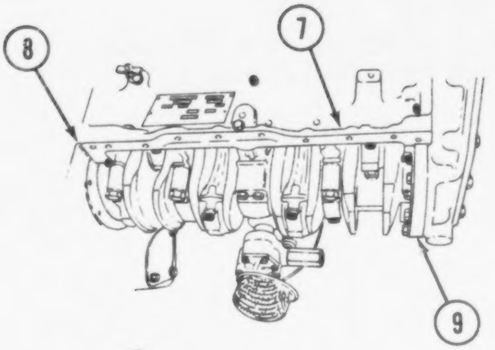
- Remove two nuts (4), lock washers (5), and rear adapter (6) from cylinder block (7). Use 1/2 inch open end wrench. Discard lock washers.

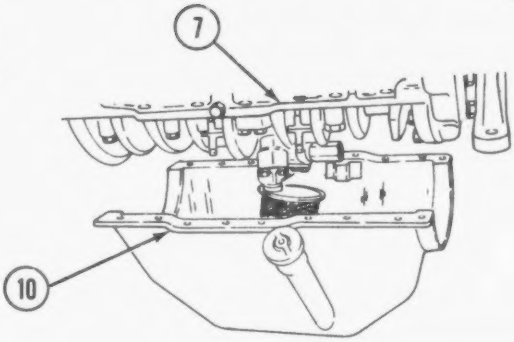


WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

8. REMOVE OIL PAN GASKET FROM ENGINE CYLINDER BLOCK.
   - Cut gasket (8) on each side of cylinder block (7) at front adapter (9). Use pocket knife.
   - Remove gasket (8) from cylinder block (7). Use putty knife. Discard gasket.
   - Clean mating surfaces on oil pan (10) and cylinder block (7). Use putty knife, solvent, and rags.

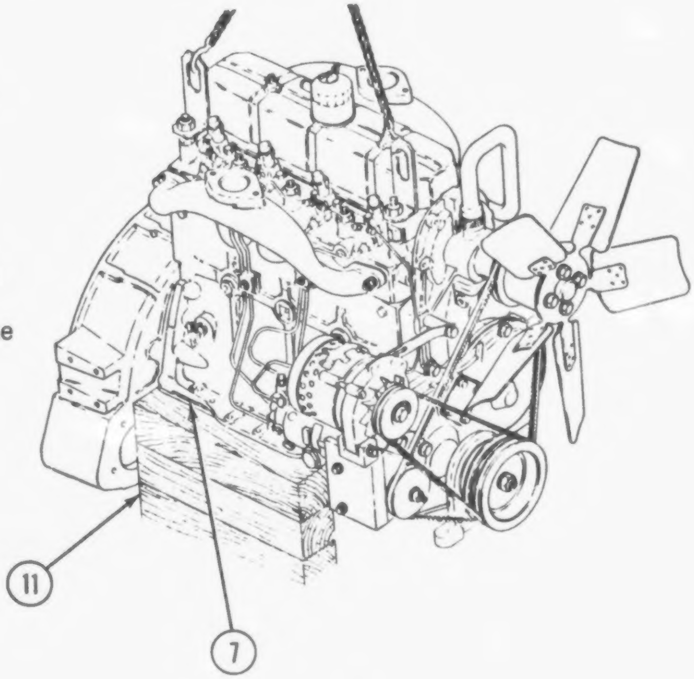




WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

9. REPOSITION WOOD BLOCKS UNDER ENGINE CYLINDER BLOCK.
   - Raise engine. Use hoist.
   - Reposition wood blocks (11) under both sides of cylinder block (7).
   - Lower engine onto wood blocks (11). Use hoist. Use helper.



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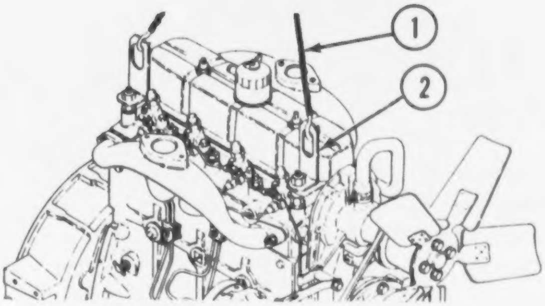
A. REMOVAL — Continued

10. REMOVE ENGINE AND TRANSMISSION SLING (1) FROM TWO LIFTING EYES (2).



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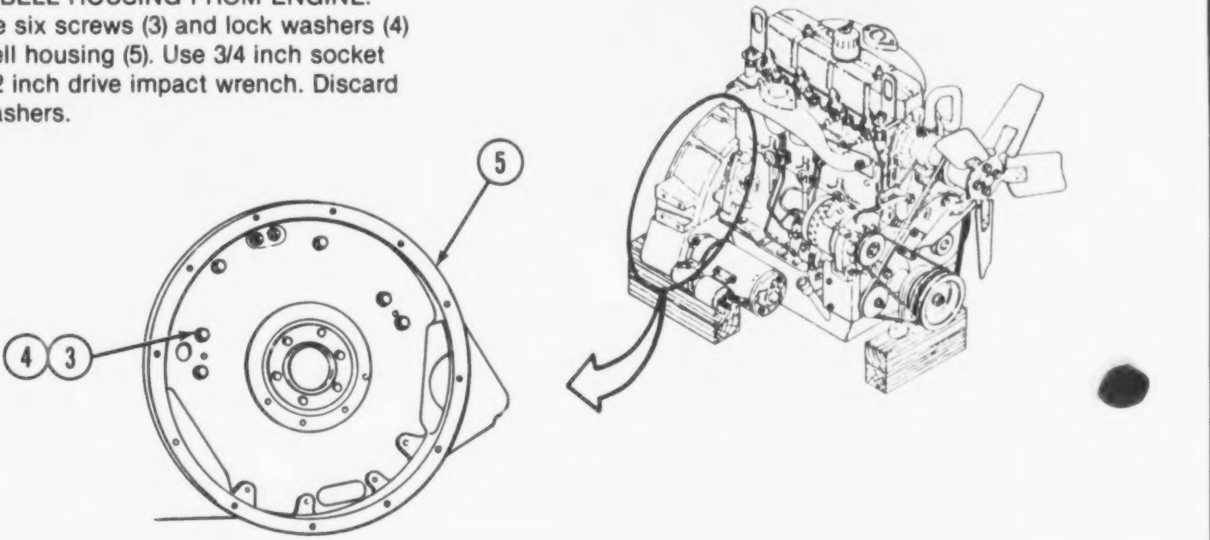
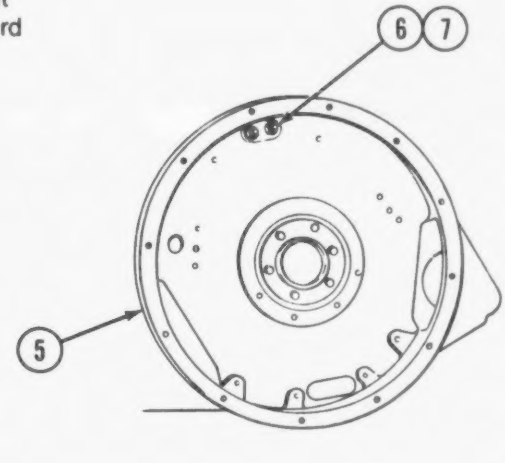
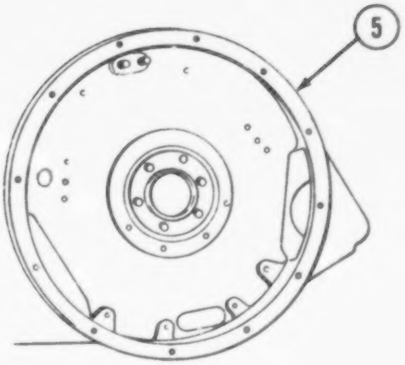
11. REMOVE BELL HOUSING FROM ENGINE.
    - Remove six screws (3) and lock washers (4) from bell housing (5). Use 3/4 inch socket with 1/2 inch drive impact wrench. Discard lock washers.



- Remove two nuts (6) and lock washers (7) from bell housing (5). Use 3/4 inch socket with 1/2 inch drive impact wrench. Discard lock washers.



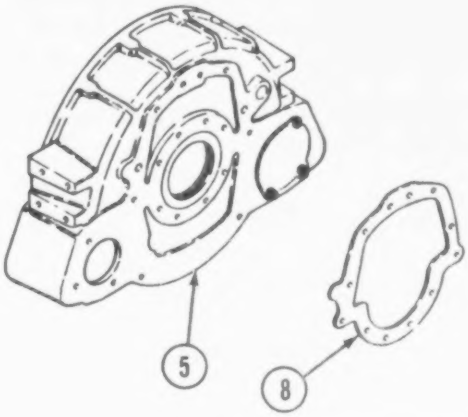
- Tap bell housing (5) away from engine. Use soft faced hammer. Use helper.



WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

12. REMOVE GASKET FROM BELL HOUSING.
    - Remove gasket (8) from bell housing (5). Discard gasket.
    - Clean mating surfaces on bell housing (5) and engine. Use putty knife, solvent, and rags.



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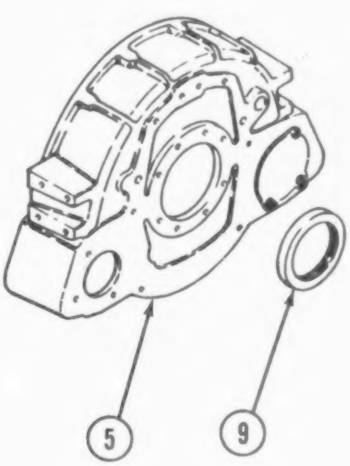
13. REMOVE REAR CRANKSHAFT SEAL FROM BELL HOUSING.
    - Remove crankshaft seal (9) from bell housing (5). Use 1/8 inch drive pin punch and soft faced hammer. Discard crankshaft seal.



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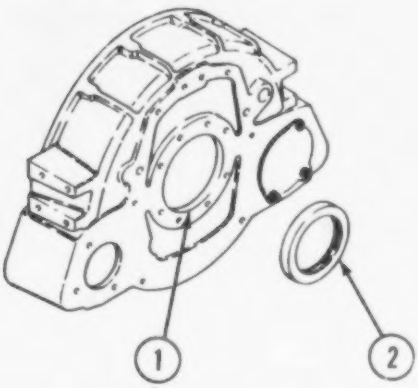
19-6 BELL HOUSING — Continued

B. INSTALLATION

1. INSTALL NEW REAR CRANKSHAFT SEAL ON BELL HOUSING.
   - Apply thin layer of sealing compound to bell housing bore (1).
   - Install new crankshaft seal (2) on bell housing bore (1). Use arbor press.



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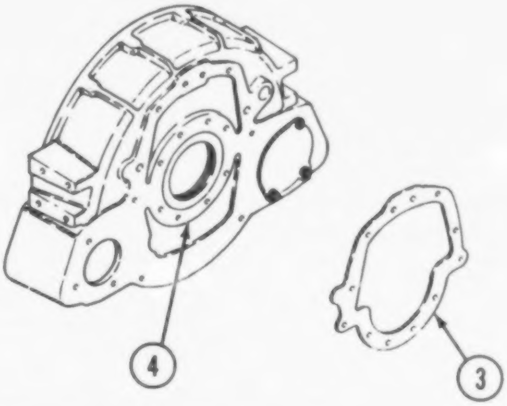
2. INSTALL NEW GASKET ON BELL HOUSING.
   - Apply adhesive sealant to new gasket (3) and bell housing gasket mounting surface (4).
   - Install gasket (3) on bell housing gasket mounting surface (4).



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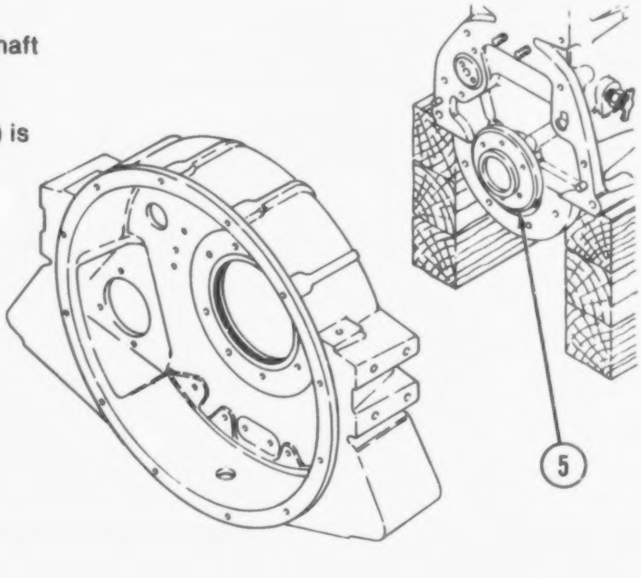
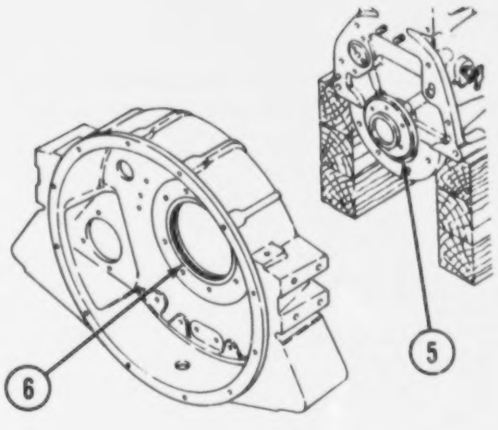
3. MEASURE CRANKSHAFT SURFACE FOR WEAR.
   - Measure diameter of surface of crankshaft (5). Diameter must be at least 4.295 in. (10.909 cm). Use micrometer caliper.
   - If diameter is not correct, crankshaft (5) is faulty.



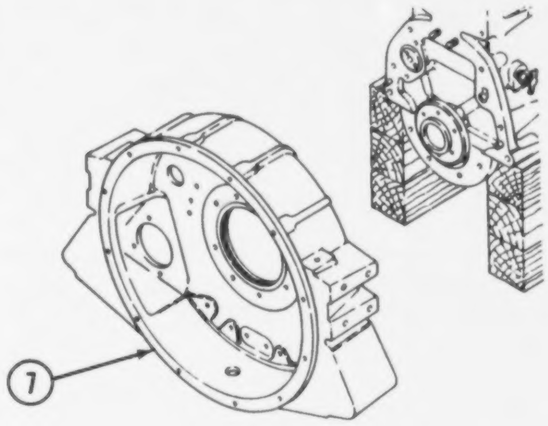
4. LUBRICATE CRANKSHAFT SURFACE AND REAR CRANKSHAFT SEAL INNER RACE.
   - Apply light coat of lubricating oil to seal inner race (6) and surface of crankshaft (5).



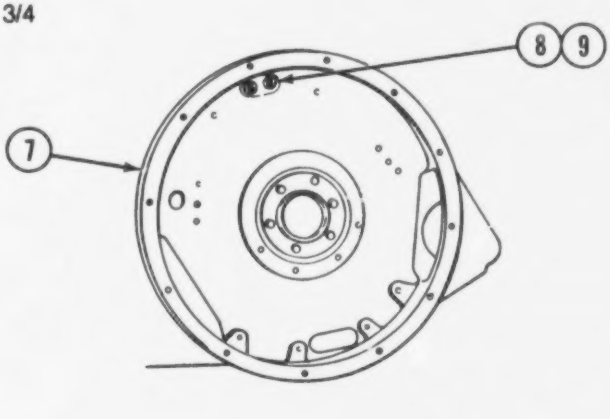
CAUTION

When placing bell housing on engine, be careful not to damage seal as seal engages crankshaft.

5. INSTALL BELL HOUSING ON ENGINE.
   - Position bell housing (7) on engine with mounting holes alined.



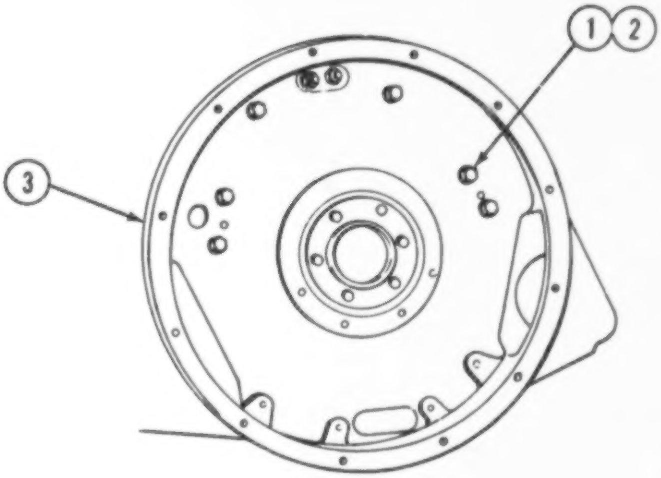
- Install bell housing (7), two new lock washers (8), and nuts (9) on engine. Use 3/4 inch socket with ratchet handle.



GO TO NEXT PAGE

B. INSTALLATION — Continued

- Install six new lock washers (1) and screws (2) on bell housing (3). Use 3/4 inch socket with ratchet handle.



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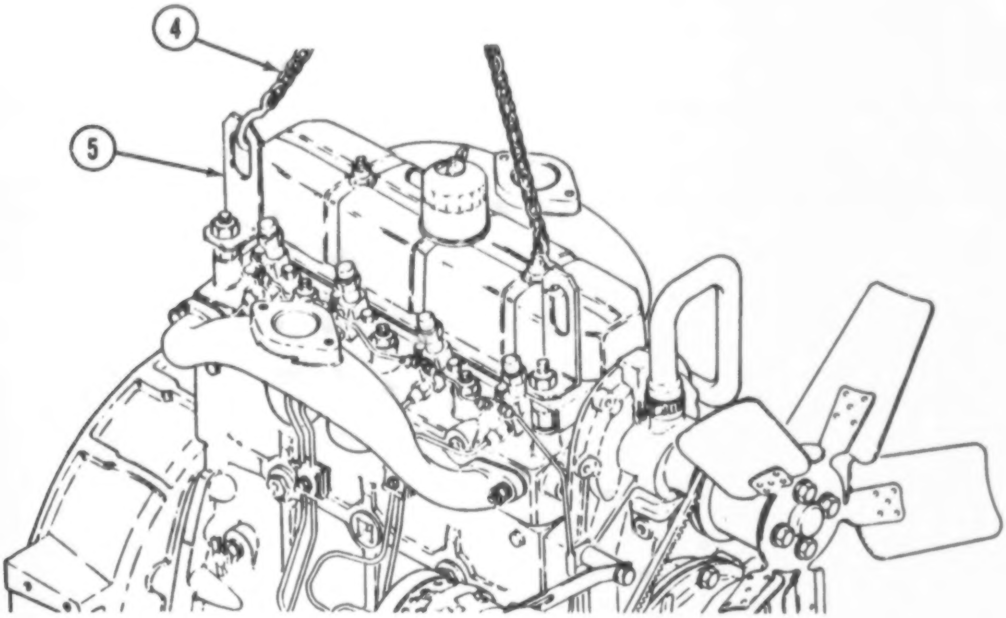
6. INSTALL ENGINE AND TRANSMISSION SLING (4) ON TWO LIFTING EYES (5).



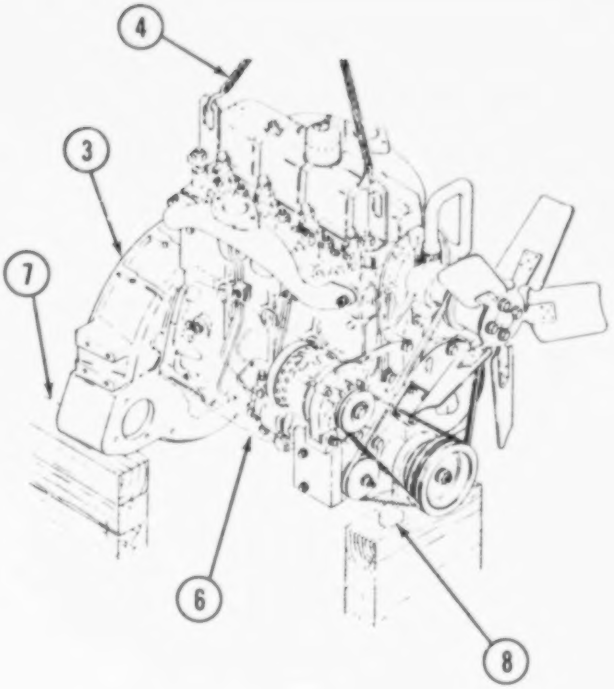
WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

NOTE

Support diesel engine with enough wood blocks to allow 14 1/4 in. (36.2 cm) clearance under cylinder block.

7. REPOSITION WOOD BLOCKS UNDER ENGINE.
   - Raise engine high enough to allow 14 1/4 in. (36.2 cm) clearance under cylinder block (6). Use hoist and measuring tape.
   - Reposition wood blocks (7) under bell housing (3) and front engine support (8).
   - Lower engine onto wood blocks (7). Use hoist. Use helper.
   - Release tension in engine and transmission sling (4).



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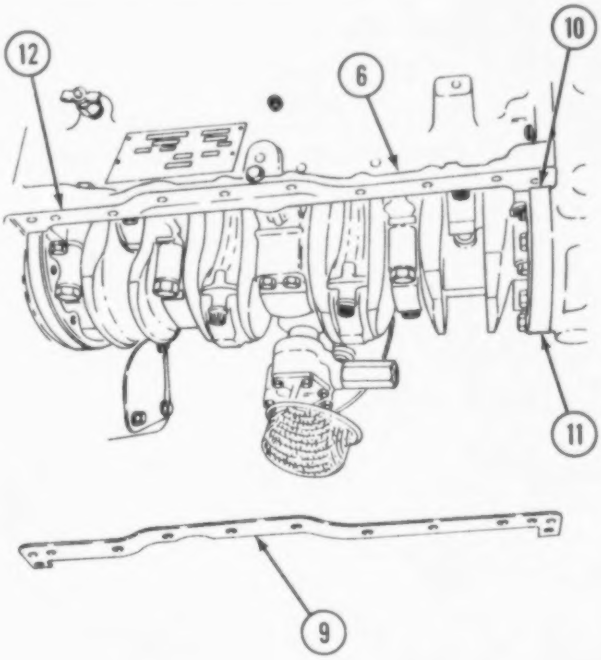
8. INSTALL NEW OIL PAN GASKET ON ENGINE CYLINDER BLOCK.
   - Aline mounting holes in new gasket (9) with mounting holes in cylinder block (6). Use helper.
   - Cut end of gasket (9) to fit against end of old gasket (10) under front adapter (11). Use pocket knife.
   - Apply adhesive sealant to cylinder block mating surface (12) and ends of old gasket (10).
   - Install gasket (9) on cylinder block mating surface (12) with ends of gasket (9) contacting ends of old gasket (10).



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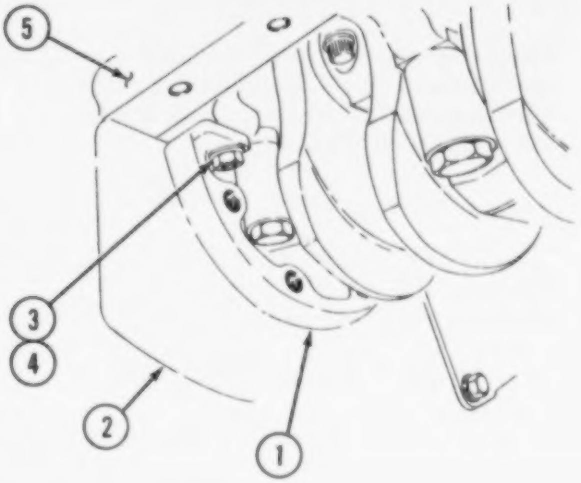
B. INSTALLATION — Continued

NOTE

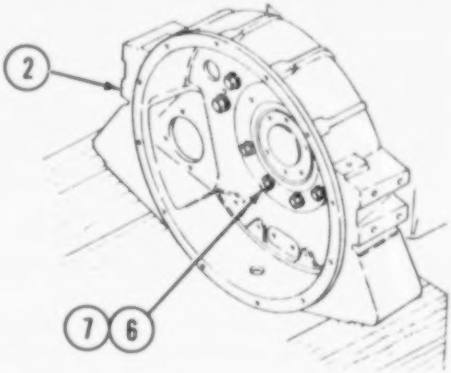
Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

9. INSTALL REAR ADAPTER ON BELL HOUSING.
   - Position adapter (1) on bell housing (2) with mounting holes alined.
   - Install adapter (1), two new lock washers (3), and nuts (4) on cylinder block (5).
   - Torque two nuts (4) to 15 ft lb (2.1 mkg). Use 1/2 inch crowfoot with 5 inch extension and 3/8 inch drive torque wrench.



   - Install four new lock washers (6) and screws (7) on bell housing (2).
   - Torque four screws (7) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.

10. INSTALL FLYWHEEL AND RING GEAR ON CRANKSHAFT. (SEE FLYWHEEL AND RING GEAR INSTALLATION, PAGE 19-77.)



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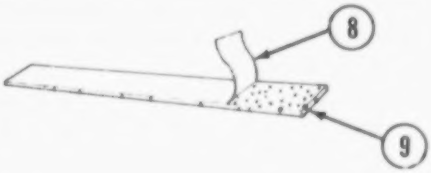
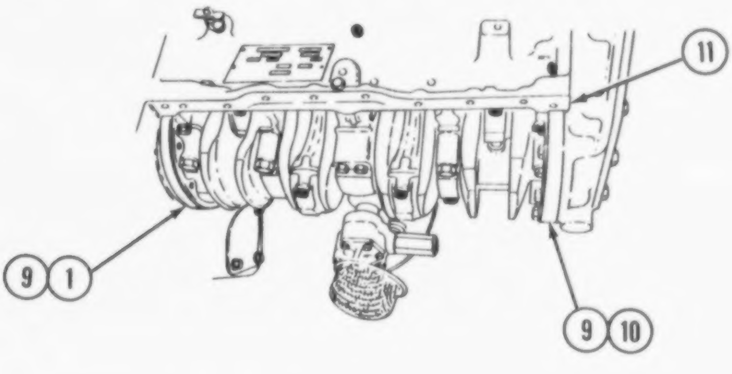
11. INSTALL TWO NEW OIL PAN ASSEMBLY END SEALS ON FRONT AND REAR ADAPTERS.
   - Remove protective cover (8) from two new end seals (9). Discard protective cover.
   - Install end seals (9) on front adapter (10) and rear adapter (1), with both ends of end seals contacting oil pan gasket (11).





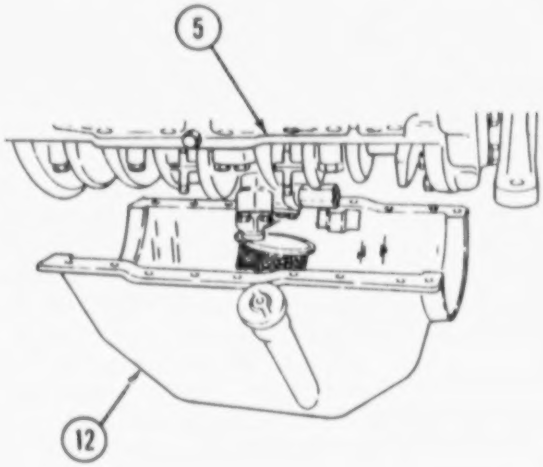
CAUTION

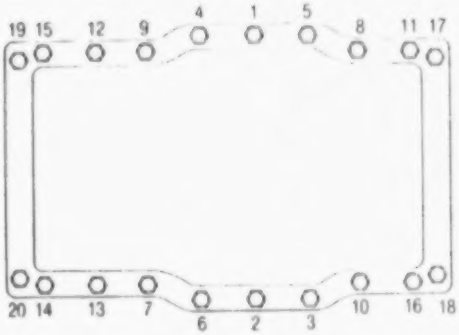
Oil pan flange can be damaged if oil pan falls. Support oil pan during installation on engine cylinder block.

NOTE

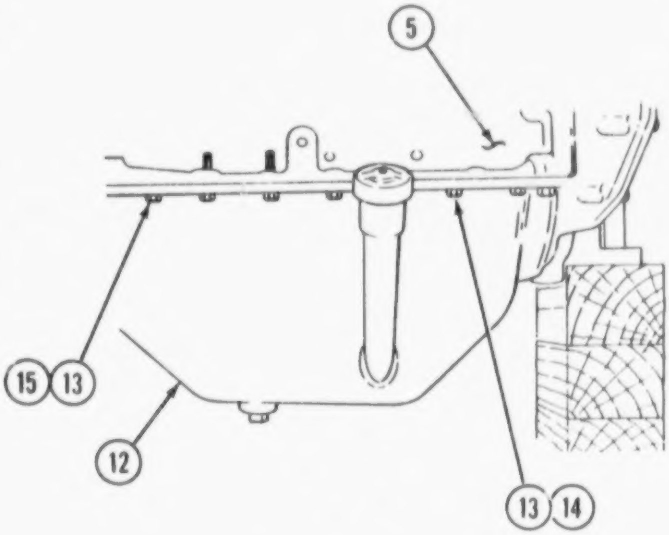
The two long screws are for mounting engine control bracket assembly.

12. INSTALL OIL PAN ASSEMBLY ON ENGINE CYLINDER BLOCK.
    - Position oil pan assembly (12) under cylinder block (5).
    - Install oil pan assembly (12), 20 new lock washers (13), 18 screws (14), and two long screws (15) on cylinder block (5). Use helper.
    - Torque 18 screws (14) and two long screws (15) to 20 ft lb (2.8 mkg). (See following Oil Pan Torquing Sequence.) Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.





Oil Pan Torquing Sequence



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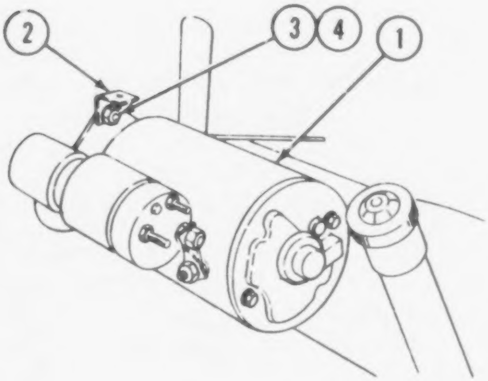
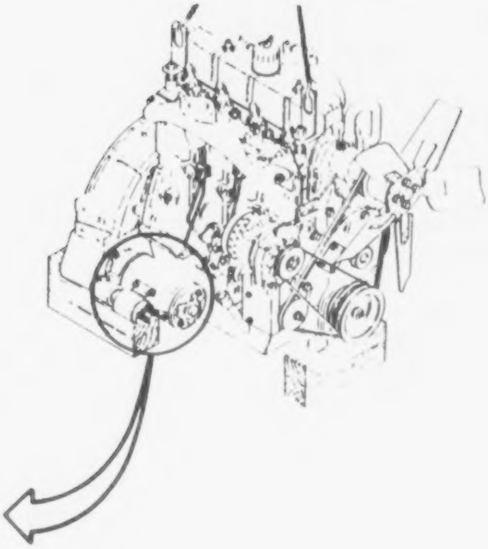
B. INSTALLATION — Continued

13. INSTALL ENGINE STARTER ON ENGINE.
    - Install starter (1), bracket (2), three lock washers (3), and nuts (4) on engine. Use 9/16 inch box end wrench.





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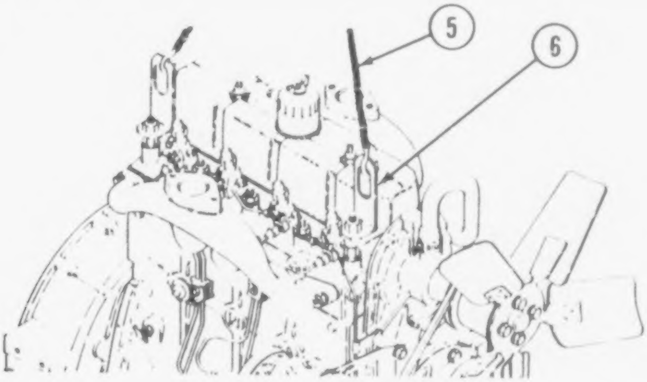
14. REMOVE ENGINE AND TRANSMISSION SLING (5) FROM TWO LIFTING EYES (6).



END OF TASK

19-7 GEAR HOUSING AND GEARS

DESCRIPTION

This task covers:

- A. GEAR HOUSING COVER REMOVAL (p 19-98)
- B. FUEL INJECTION PUMP DRIVE GEAR REMOVAL (p 19-114)
- C. IDLER GEAR AND BEARING ASSEMBLY REMOVAL (p 19-115)
- D. GEAR HOUSING REMOVAL (p 19-116)
- E. GEAR HOUSING INSTALLATION (p 19-118)
- F. IDLER GEAR AND BEARING ASSEMBLY INSTALLATION (p 19-124)
- G. FUEL INJECTION PUMP DRIVE GEAR INSTALLATION (p 19-125)
- H. GEAR HOUSING COVER INSTALLATION (p 19-125)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - 7/16 inch box end wrench
  - 7/16 inch open end wrench
  - 1/2 inch open end wrench
  - 9/16 inch open end wrench
  - 9/16 inch box end wrench
  - 3/4 inch box end wrench
  - 7/16 inch socket
  - 1/2 inch socket
  - 9/16 inch socket
  - 3/4 inch socket
  - 7/8 inch socket
  - 5 inch extension
  - Ratchet handle
  - Pocket knife
  - Putty knife
  - 1/4 inch flat tip screwdriver
  - 1/8 inch drive pin punch
  - 1/4 inch drive pin punch
  - Diagonal cutting pliers
  - Slip joint pliers
  - 10 inch adjustable wrench
- Cap and plug set 5340-00-450-5718
- Goggles 4240-00-269-7912
- Measuring tape 5120-00-287-3335
- 1000 pound capacity hoist 3950-00-292-9879
- Engine and transmission sling 4900-00-944-4915
- Soft faced hammer 5120-00-903-8553
- Mechanical puller 5120-00-443-1596
- Machinist's scriber 5120-00-221-7063
- 3/8 inch drive torque wrench 5120-00-541-3001
- 1/2 inch drive torque wrench 5120-00-640-6364
- 3/4 inch drive ratchet handle 5120-00-249-1076

Tools and Special Tools — Continued:

- 3/4 inch drive torque wrench 5120-00-247-2540
- Arbor press 3444-00-449-7297
- 3/4 inch drive 1 5/8 inch socket 5120-00-199-7765
- 3/4 inch drive hinged handle 5120-00-221-7959
- 1 inch drive 1 5/8 inch socket 5120-00-189-7958
- 1 inch drive impact wrench 5130-00-889-9020
- 7/16 inch box and open end box wrench 5120-00-895-9568
- 3/4 inch box and open end box wrench 5120-00-895-9573
- 3/8 inch drive 1/2 inch crowfoot 5120-00-184-8384
- 3/8 inch drive 9/16 inch crowfoot 5120-00-037-5268
- Plier wrench 5120-00-277-4244
- Strap wrench: 1 1/2 inch strap, 7 inch capacity
- Dial indicator scale 6670-00-254-4634
- Micrometer caliper 5120-00-225-9763
- Brass rod, , Appendix C

Materials/Parts:

- Lock washer (15) 5310-00-637-9541
- Lock washer (7) 5310-00-003-4094
- Lock washer (2) (28265)
- Lock washer (20) 5310-01-133-7241
- Lock washer (4) (28265) 2012-04021
- Lock washer (2) (28265) 4426A
- Injector sleeve washer 5310-00-167-9009
- Cover gasket 2815-00-790-2659
- Copper gasket (4) 5330-00-530-2523
- Plate gasket 5330-00-231-0283

GO TO NEXT PAGE

INITIAL SETUP — Continued

Materials/Parts — Continued:
Gasket 5330-00-893-7799
Cover gasket 5330-00-506-3975
End seal (2) 5330-00-649-8437
Oil seal 5330-00-598-8962
Retaining nut (2) (28265) 207418
Gasket (8) 5365-00-891-8931
Lock washer (5) 5310-00-010-3320
Lock washer (28265) 2012-04023
Lock washer
Idler bearing (2) 3110-00-596-3415
Adhesive sealant, Item 2, Appendix B
Sealing compound, Item 25, Appendix B
Plastic sheet, Item 20, Appendix B

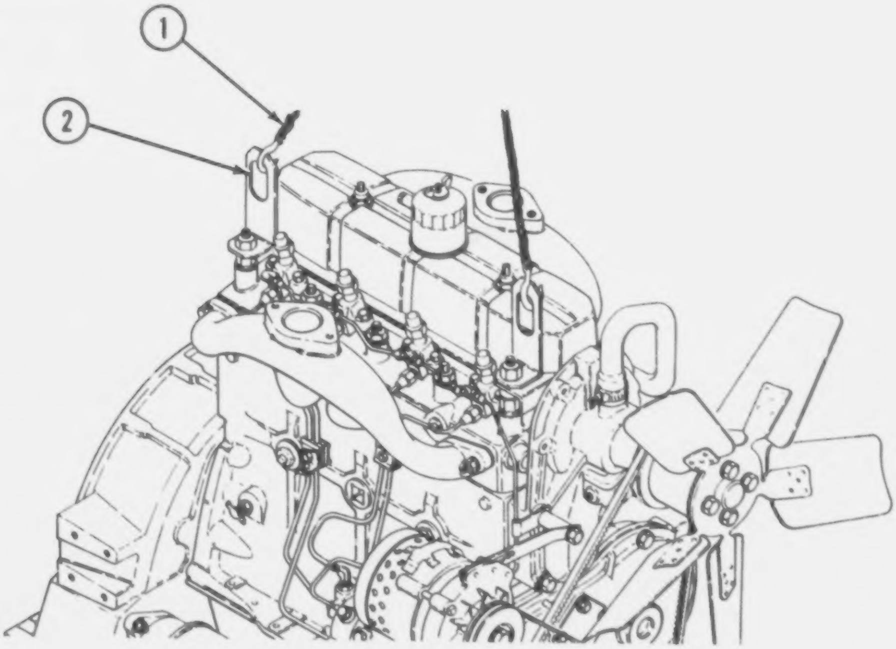
Materials/Parts — Continued:
Solvent, Item 28, Appendix B
Rags, Item 22, Appendix B
Safety wire, Item 23, Appendix B
Gasket 5330-00-673-3821
Lubricating oil, Item 16, Appendix B

Personnel Required:
Mechanic
Helper

References:
LO 9-1095-205-12
TM 9-1095-205-20

A. GEAR HOUSING COVER REMOVAL

1. ATTACH ENGINE AND TRANSMISSION SLING (1) TO TWO LIFTING EYES (2) ON ENGINE.



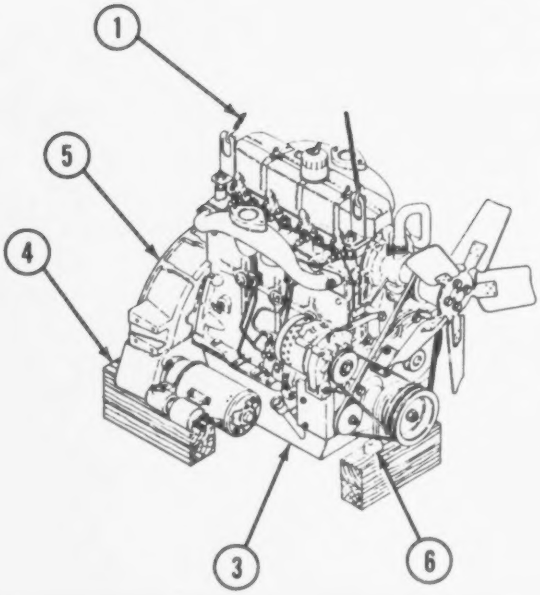
WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

NOTE

Support diesel engine with enough wood blocks to allow a minimum of 7 in. (17.8 cm) of clearance under oil pan.

2. POSITION WOOD BLOCKS UNDER ENGINE.
   - Raise engine high enough to allow 7 in. (17.8 cm) of clearance under oil pan (3). Use hoist and measuring tape. Use helper.
   - Position wood blocks (4) under both sides of bell housing (5) and under front engine support (6). Use wood blocks.
   - Lower engine onto wood blocks (4). Use hoist. Use helper.
   - Release tension in engine and transmission sling (1).



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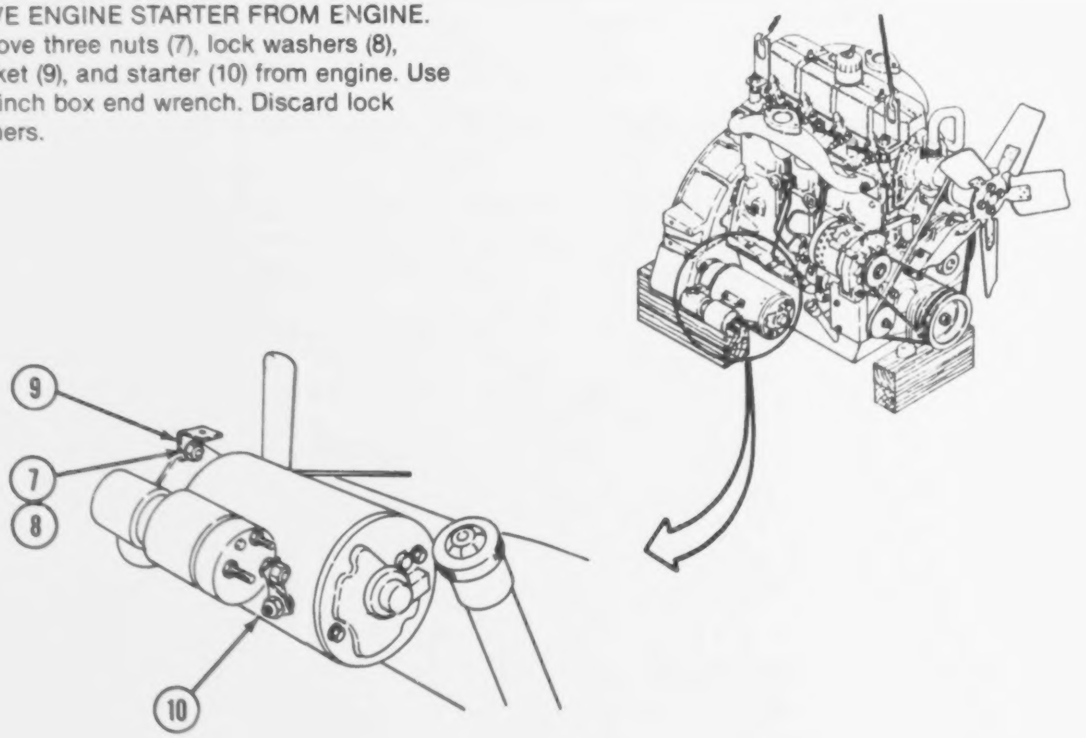
3. REMOVE ENGINE STARTER FROM ENGINE.
   - Remove three nuts (7), lock washers (8), bracket (9), and starter (10) from engine. Use 9/16 inch box end wrench. Discard lock washers.



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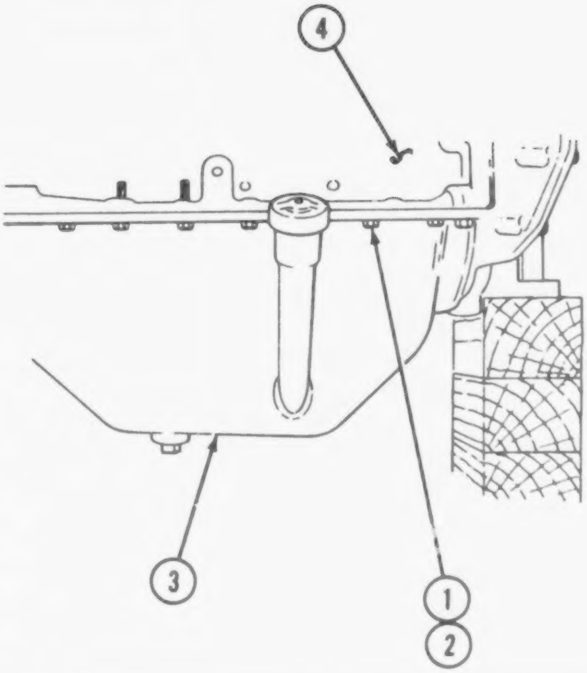
A. GEAR HOUSING COVER REMOVAL — Continued

CAUTION

Oil pan flange can be damaged if oil pan falls. Support oil pan while removing from engine cylinder block.

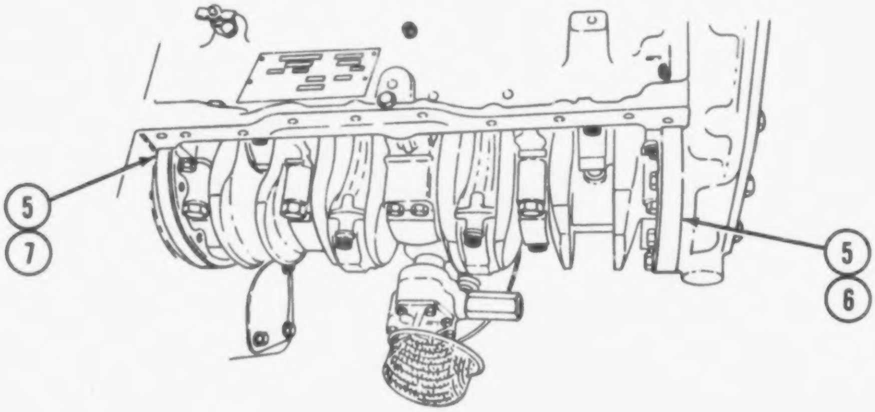
4. REMOVE OIL PAN ASSEMBLY FROM ENGINE CYLINDER BLOCK.
   - Remove 20 screws (1), lock washers (2), and oil pan (3) from cylinder block (4). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers. Use helper.



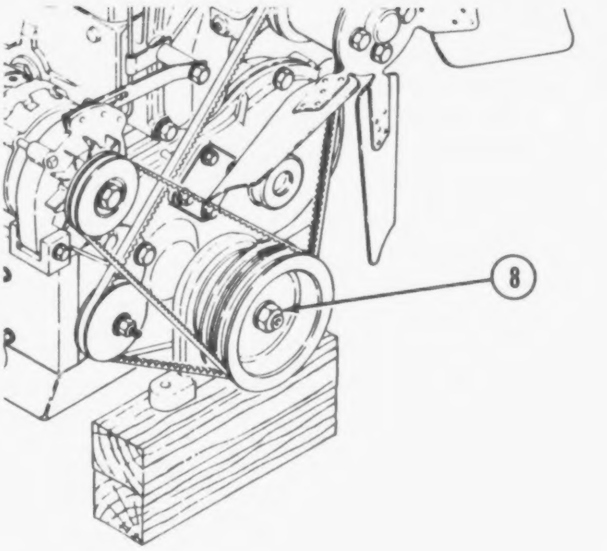
WARNING

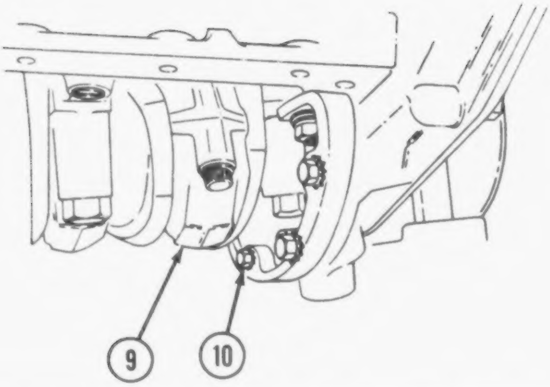
Cleaning solvent can explode and can burn. Read warning on front page of this manual.

5. REMOVE TWO OIL PAN ASSEMBLY END SEALS FROM FRONT AND REAR ADAPTERS.
   - Remove oil pan end seals (5) from front adapter (6) and rear adapter (7). Use putty knife, solvent, and rags. Discard seals.



6. CLEAR ENGINE CRANKSHAFT FROM FRONT ADAPTER.
   - Turn crankshaft nut (8) to right until crankshaft (9) is clear of four adapter mounting screws (10). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.





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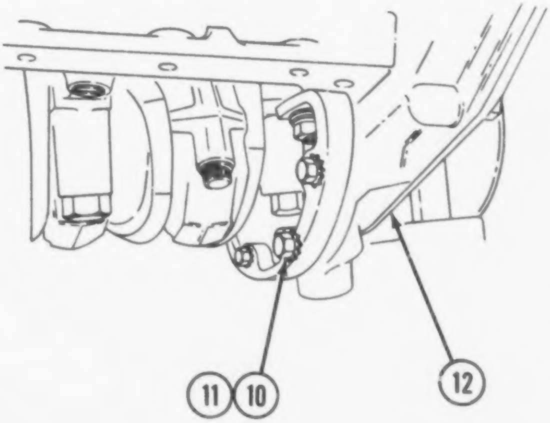
7. REMOVE FRONT ADAPTER FROM ENGINE GEAR HOUSING.
   - Remove four adapter mounting screws (10) and lock washers (11) from gear housing (12). Use 9/16 inch open end wrench. Discard lock washers.



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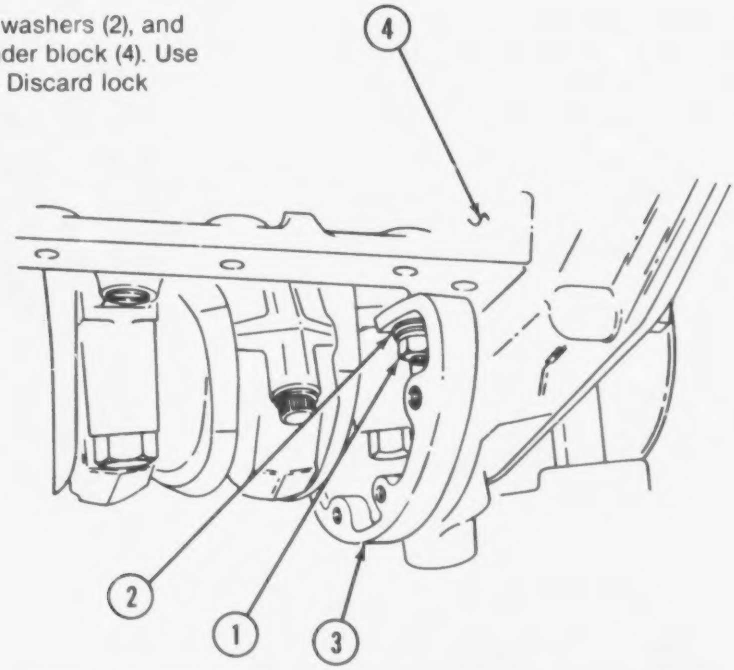
A. GEAR HOUSING COVER REMOVAL — Continued

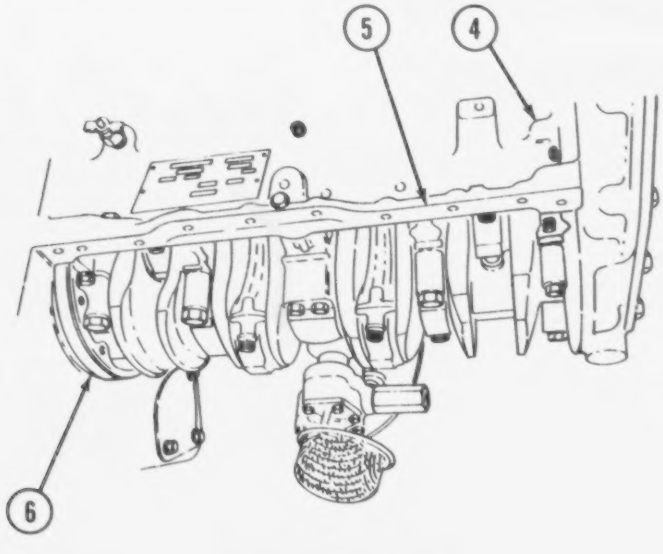
- Remove two nuts (1), lock washers (2), and front adapter (3) from cylinder block (4). Use 1/2 inch open end wrench. Discard lock washers.



WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

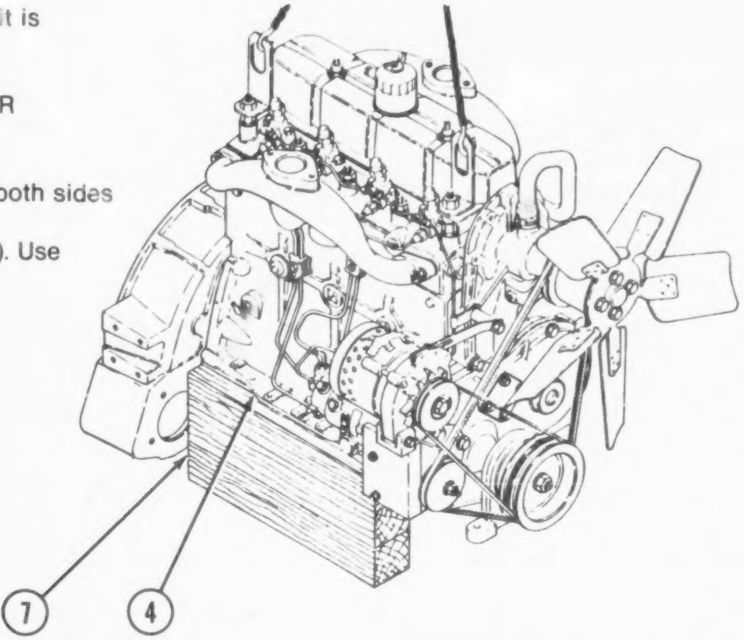
8. REMOVE OIL PAN GASKET FROM ENGINE CYLINDER BLOCK.
   - Cut oil pan gasket (5) on each side of cylinder block (4) at rear adapter (6). Use pocket knife.
   - Remove oil pan gasket (5) from cylinder block (4). Use putty knife, solvent, and rags. Discard gasket.



WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

9. REPOSITION WOOD BLOCKS UNDER ENGINE CYLINDER BLOCK.
   - Raise engine. Use hoist.
   - Reposition wood blocks (7) under both sides of cylinder block (4).
   - Lower engine onto wood blocks (7). Use hoist. Use helper.



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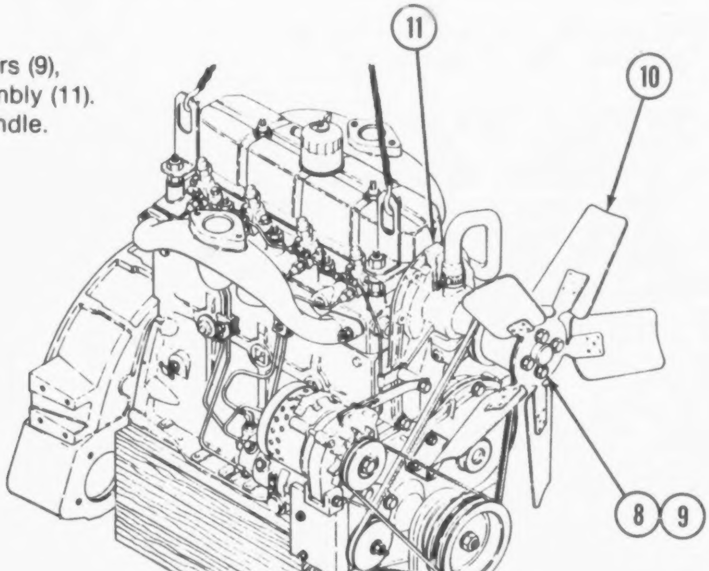
10. REMOVE FAN FROM WATER PUMP ASSEMBLY.
    - Remove four screws (8), lock washers (9), and fan (10) from water pump assembly (11). Use 1/2 inch socket with ratchet handle. Discard lock washers.



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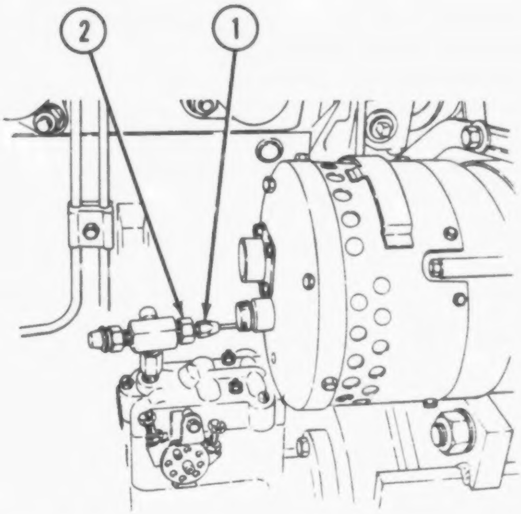
A. GEAR HOUSING COVER REMOVAL — Continued

WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

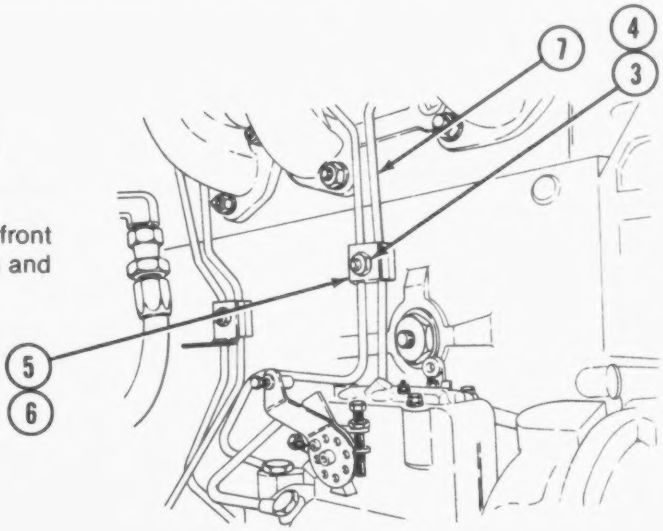
11. DISCONNECT FRONT LEAKOFF TUBE FROM ADAPTER.
    - Tag and mark tube.
    - Disconnect tube (1) from adapter (2). Use 7/16 inch box and open end box and 7/16 inch open end wrenches.
    - Plug tube, and cap adapter.



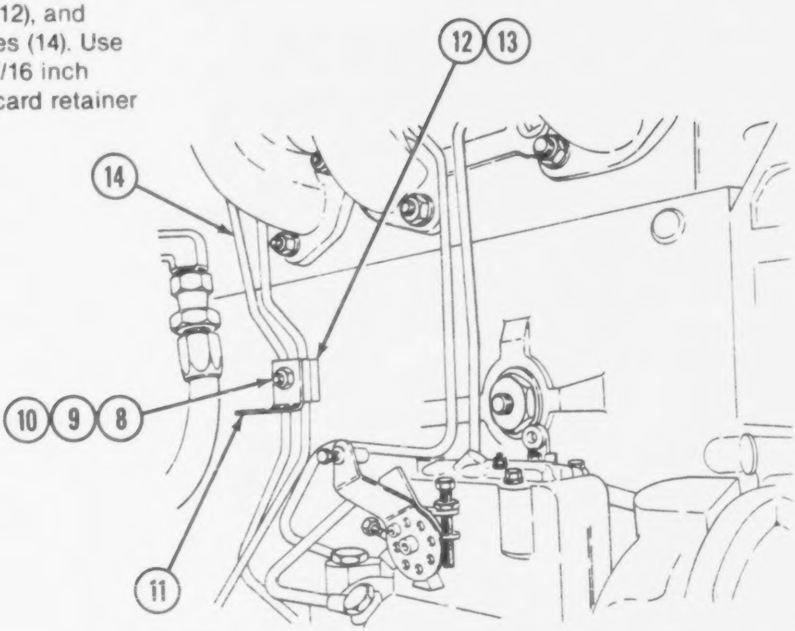
WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

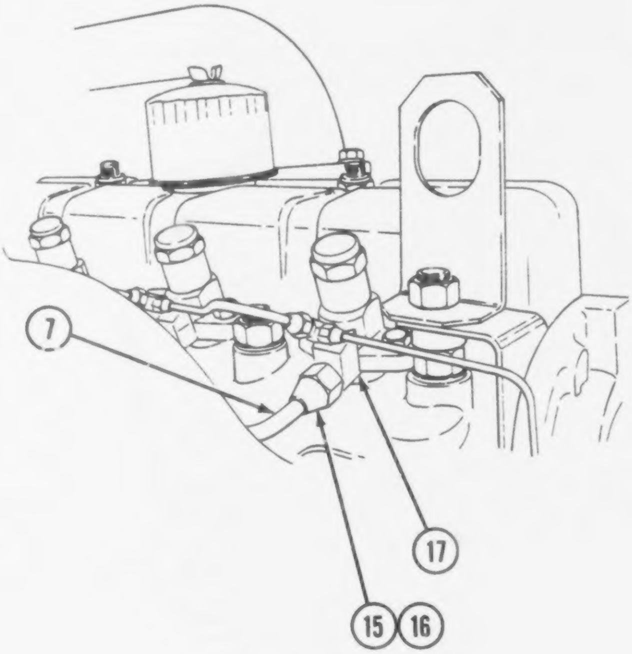
12. REMOVE FOUR FUEL INJECTION TUBES FROM ENGINE.
    - Remove retainer nut (3), screw (4), two retainers (5), and cushions (6) from two front tubes (7). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle. Discard retainer nut.



- Remove retainer nut (8), screw (9), washer (10), bracket (11), two retainers (12), and cushions (13) from two rear tubes (14). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle. Discard retainer nut.



- Tag and mark tubes.
- Disconnect front tube (7) with tube nut (15) and ferrule (16) from nozzle (17). Use 3/4 inch box and open end wrenches.



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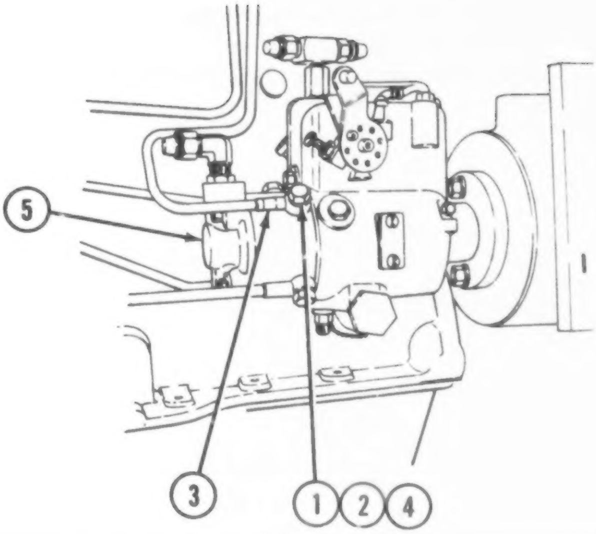
A. GEAR HOUSING COVER REMOVAL — Continued

- Remove screw (1), gasket (2), tube (3), and gasket (4) from fuel injection pump (5). Use 9/16 inch box end wrench. Discard gaskets.
- Remove tube (3) from engine.
- Install screw (1) on fuel injection pump (5).
- Plug tube, and cap nozzle.
- Repeat above removal steps for other three tubes.



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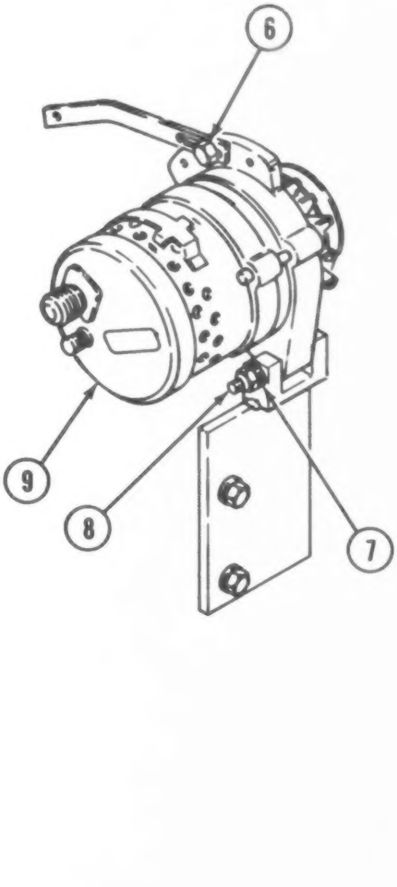
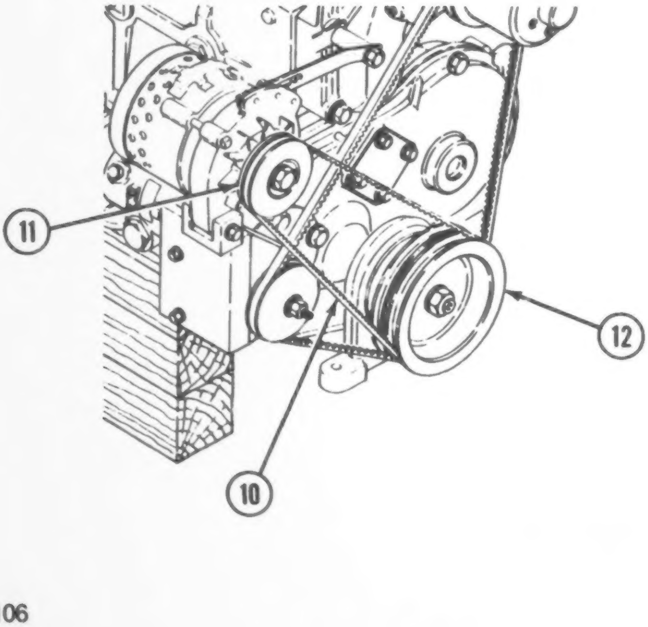
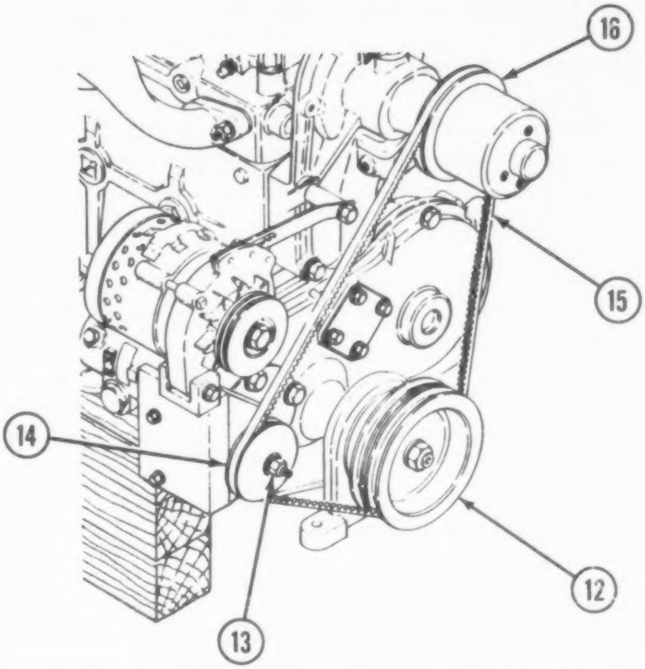
3. REMOVE ALTERNATOR BELT FROM ENGINE.
   - Loosen screw (6). Use 1/2 inch socket with ratchet handle.
   - Loosen nut (7) on screw (8). Use 3/4 inch box end wrench and 3/4 inch socket with 5 inch extension and ratchet handle.
   - Swing alternator (9) toward engine.
   - Remove alternator belt (10) from alternator pulley (11) and crankshaft pulley (12).





14. REMOVE FAN BELT FROM ENGINE.
    - Loosen nut (13). Use 3/4 inch box end wrench.
    - Slide idler pulley (14) toward engine.
    - Remove fan belt (15) from idler pulley (14), fan pulley (16), and crankshaft pulley (12).



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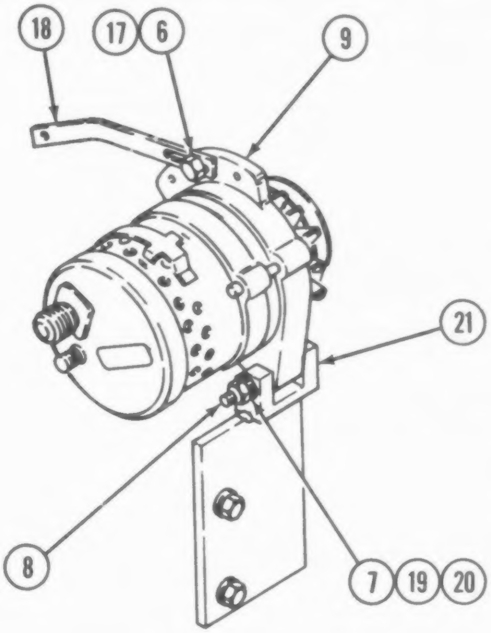
15. REMOVE ALTERNATOR FROM BRACKET ASSEMBLY.
    - Remove screw (6) and lock washer (17) from adjusting strap (18). Use 1/2 inch socket with ratchet handle. Discard lock washer.
    - Remove nut (7), lock washer (19), washer (20), screw (8), and alternator (9) from bracket assembly (21). Use 3/4 inch box end wrench and 3/4 inch socket with ratchet handle. Discard lock washer.



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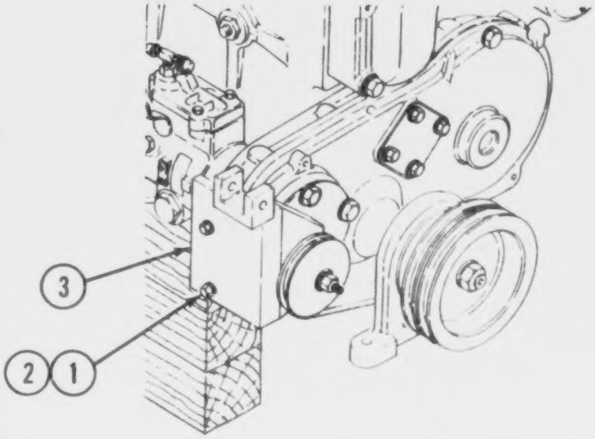
A. GEAR HOUSING COVER REMOVAL — Continued

16. REMOVE BRACKET ASSEMBLY FROM ENGINE.
    - Remove two screws (1), lock washers (2), and bracket assembly (3) from engine. Use 3/4 inch socket with ratchet handle. Discard lock washers.



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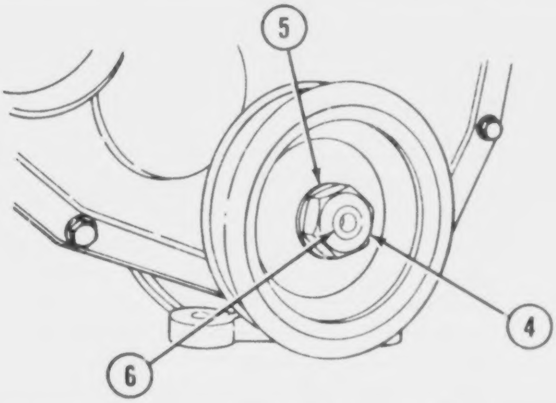
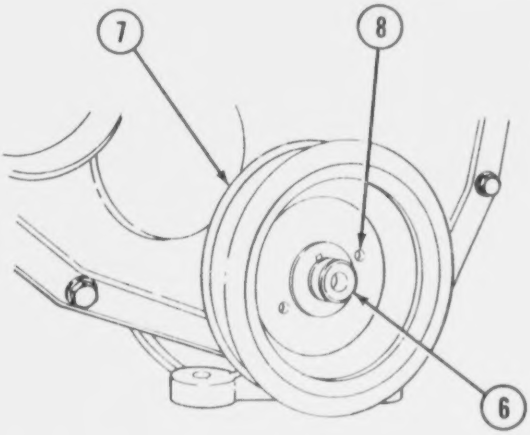
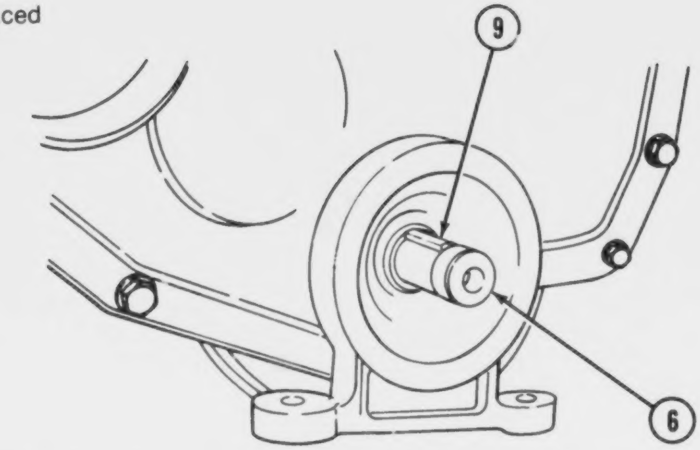
17. REMOVE CRANKSHAFT PULLEY FROM CRANKSHAFT.
    - Remove nut (4) and lock washer (5) from crankshaft (6). Use 1 5/8 inch socket with 1 inch drive impact wrench. Discard lock washer.



- Remove pulley (7) from crankshaft (6) using threaded holes (8) in pulley. Use pulley puller and 10 inch adjustable wrench.



- Remove woodruff key (9) from crankshaft (6). Use 1/4 inch pin punch and soft faced hammer.



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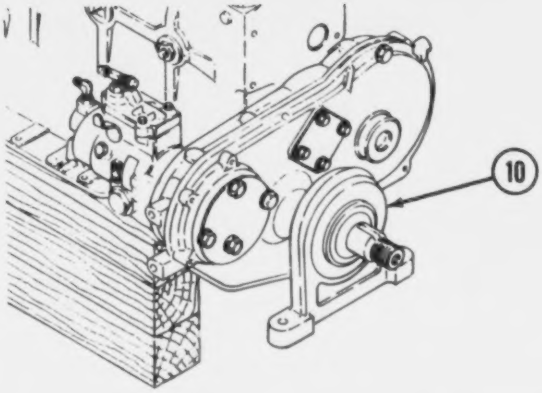
18. REMOVE FRONT ENGINE SUPPORT (10) FROM ENGINE.



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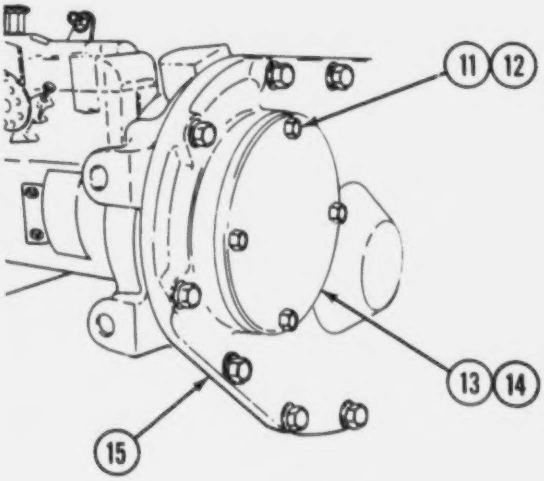
19. REMOVE THRUST PLATE FROM GEAR HOUSING COVER.
    - Remove four screws (11), copper gaskets (12), thrust plate (13), and plate gasket (14) from gear housing cover (15). Use 9/16 inch socket with ratchet handle. Discard copper gaskets and plate gasket.



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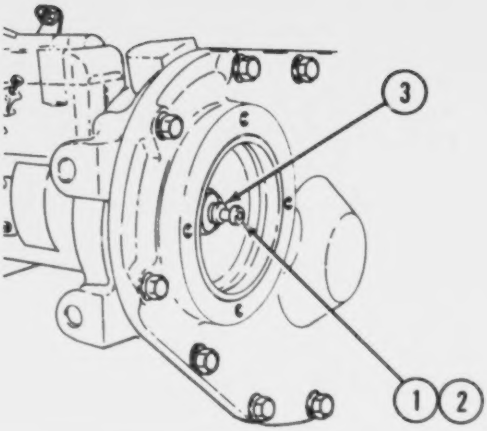
A. GEAR HOUSING COVER REMOVAL — Continued

20. REMOVE THRUST PLUG (1) AND SPRING (2) FROM FUEL INJECTION PUMP DRIVE SHAFT (3).



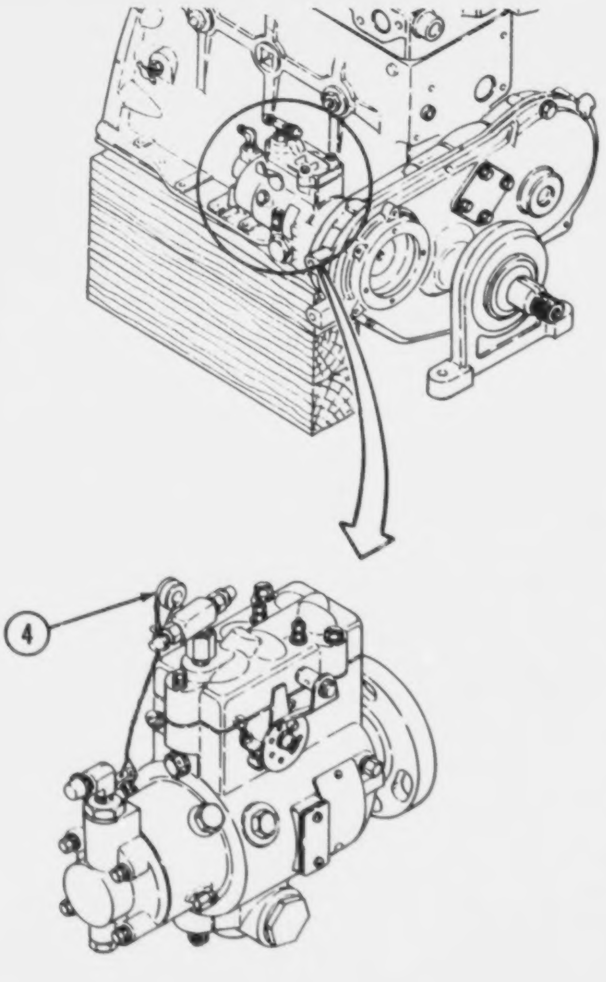
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

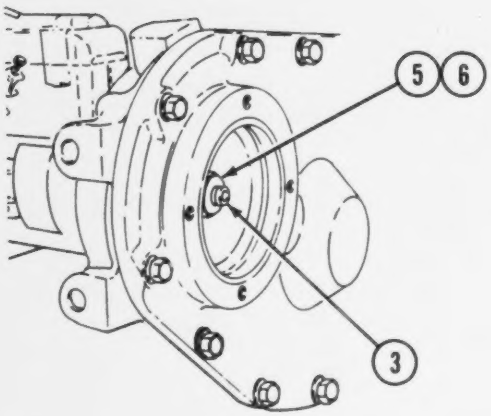
CAUTION

Parts inside fuel injection pump will come loose if throttle is not in open position. Secure throttle control lever in open position before you remove fuel injection pump.

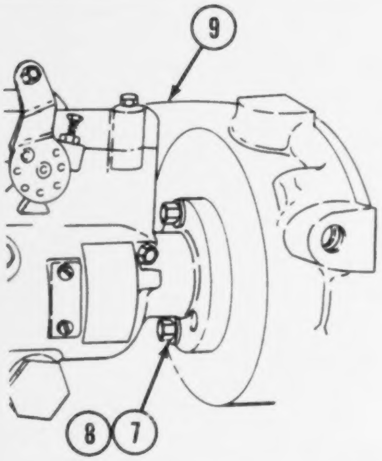
21. SECURE THROTTLE CONTROL LEVER IN OPEN POSITION.
    - Move throttle control lever (4) fully to left (open position).
    - Secure throttle control lever (4) in open position. Use safety wire and slip joint pliers.



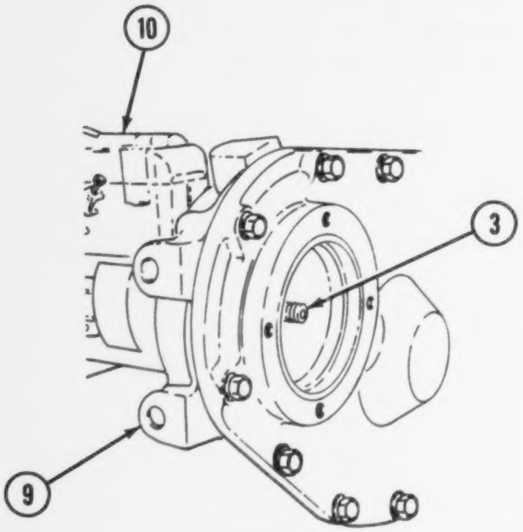
22. REMOVE FUEL INJECTION PUMP FROM GEAR HOUSING.
    - Remove nut (5) and lock washer (6) from fuel injection pump drive shaft (3). Use 7/8 inch socket with ratchet handle. Discard lock washer.



- Remove two screws (7) and washers (8) from gear housing (9). Use 9/16 inch open end wrench.



- Support fuel pump (10) and tap end of fuel injection pump drive shaft (3). Use soft faced hammer.
- Remove fuel pump (10) from gear housing (9).



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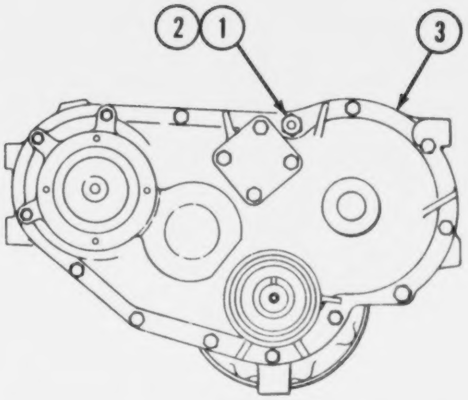
A. GEAR HOUSING COVER REMOVAL — Continued

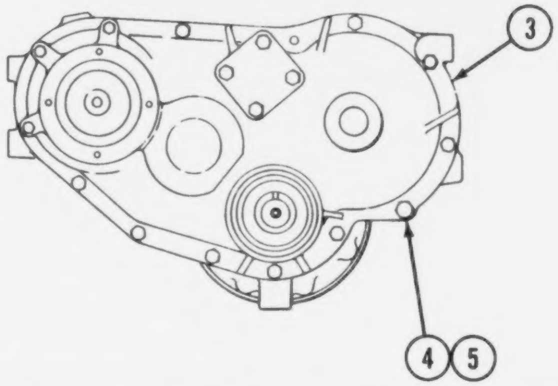
WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

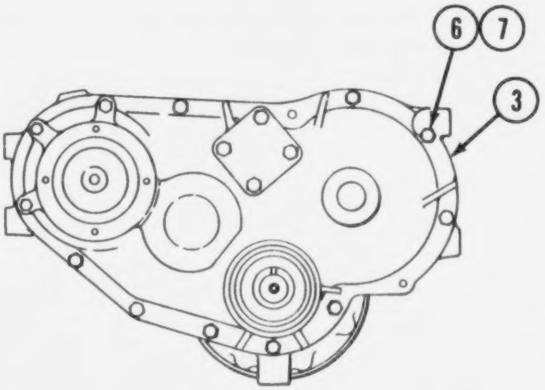
23. REMOVE GEAR HOUSING COVER FROM GEAR HOUSING.
    - Remove nut (1) and lock washer (2) from cover (3). Use 3/4 inch socket with ratchet handle. Discard lock washer.



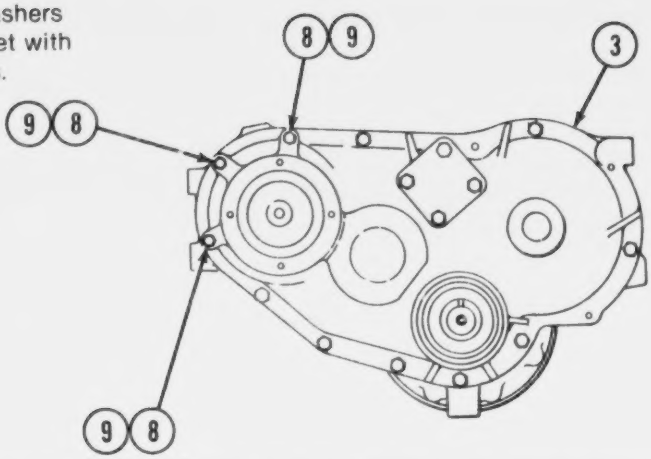
- Remove screw (4) and lock washer (5) from cover (3). Use 3/4 inch socket with ratchet handle. Discard lock washer.



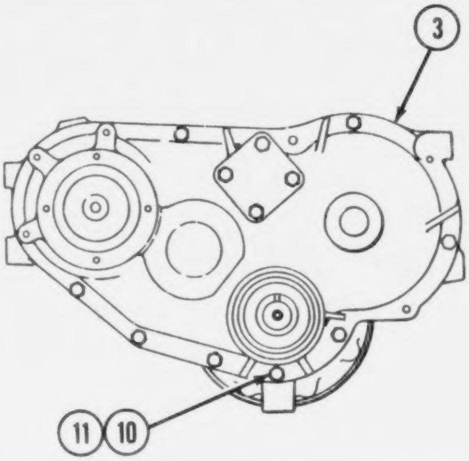
- Remove screw (6) and lock washer (7) from cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washer.



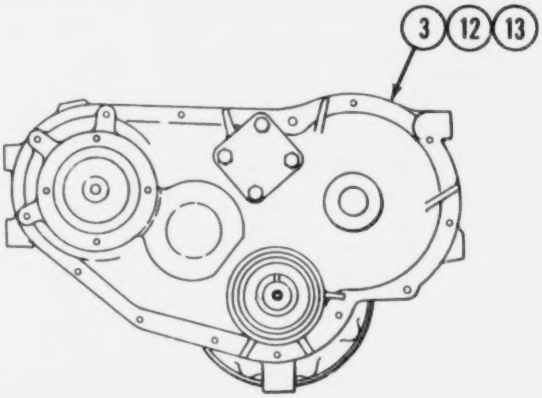
- Remove three screws (8) and lock washers (9) from cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washers.



- Remove eight screws (10) and lock washers (11) from cover (3). Use 9/16 inch socket with ratchet handle. Discard lock washers.



- Remove cover (3) and gasket (12) from gear housing (13). Use soft faced hammer. Discard gasket.
- Clean mating surfaces of cover (3) and gear housing (13). Use putty knife, solvent, and rags.



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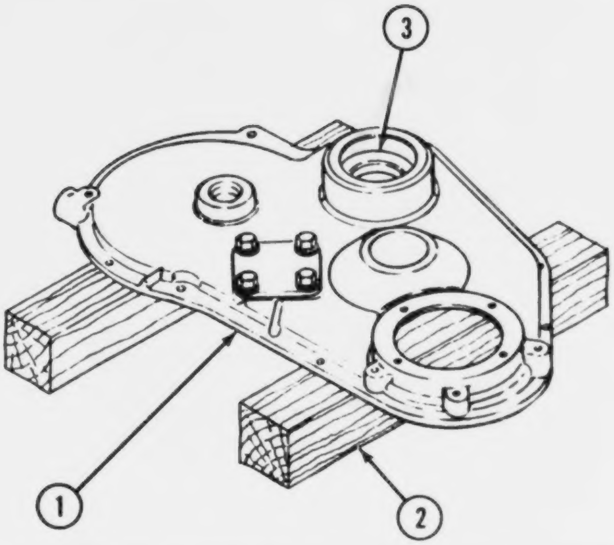
A. GEAR HOUSING COVER REMOVAL — Continued

24. REMOVE OIL SEAL FROM GEAR HOUSING COVER.
    - Place cover (1) on two wood blocks (2).
    - Remove oil seal (3) from cover (1). Use 1/8 inch drive pin punch and soft faced hammer. Discard oil seal.



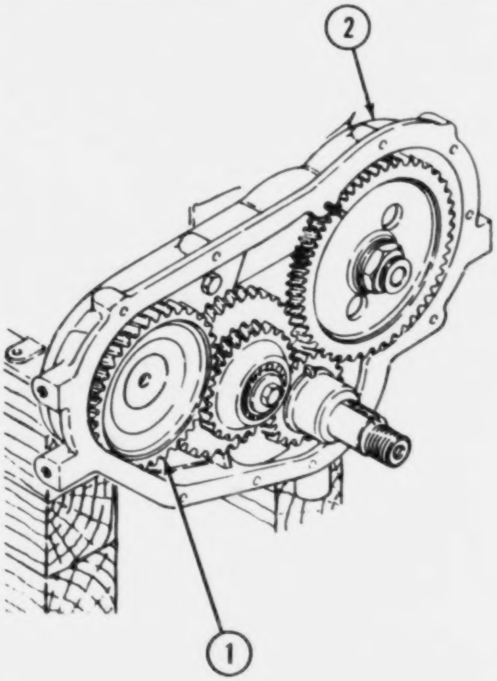
B. FUEL INJECTION PUMP DRIVE GEAR REMOVAL

1. REMOVE GEAR HOUSING COVER FROM ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-98.)

CAUTION

Fuel injection pump drive gear can fall and be damaged. Do not rotate gears until fuel injection pump drive gear has been removed from gear housing.

2. REMOVE FUEL INJECTION PUMP DRIVE GEAR (1) FROM GEAR HOUSING (2).



C. IDLER GEAR AND BEARING ASSEMBLY REMOVAL

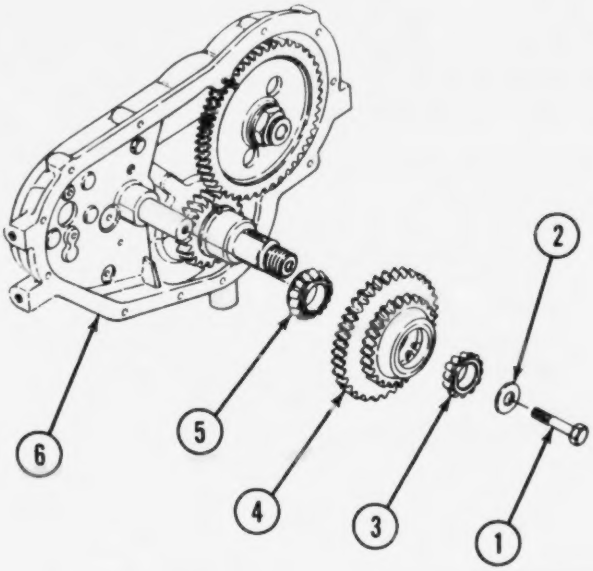
1. REMOVE GEAR HOUSING COVER FROM ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-98.)

2. REMOVE FUEL INJECTION PUMP DRIVE GEAR FROM GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-114.)

CAUTION

Front bearing can fall and be damaged. Do not tilt idler gear and bearing assembly until front bearing is removed.

3. REMOVE IDLER GEAR AND BEARING ASSEMBLY FROM GEAR HOUSING.
   - Remove screw (1), washer (2), front bearing (3), idler gear and bearing assembly (4), and rear bearing (5) from gear housing (6). Use 7/16 inch socket with ratchet handle. Discard bearings.



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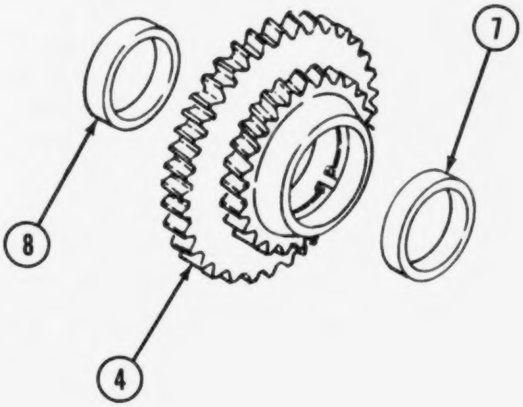
4. REMOVE FRONT AND REAR BEARING CUPS FROM IDLER GEAR AND BEARING ASSEMBLY.
   - Remove front and rear bearing cups (7) and (8) from idler gear and bearing assembly (4). Use mechanical puller. Discard bearing cups.



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19-7 GEAR HOUSING AND GEARS — Continued

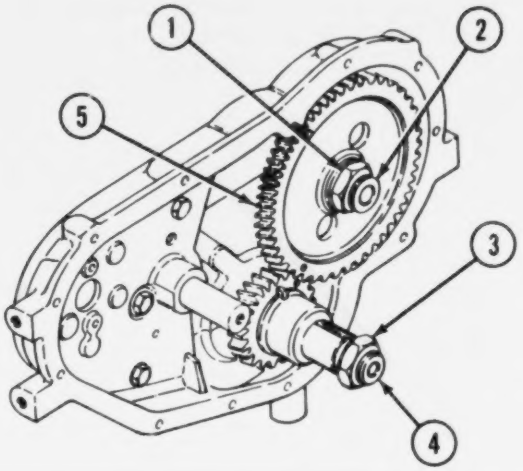
D. GEAR HOUSING REMOVAL

1. REMOVE GEAR HOUSING COVER FROM ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-98.)
2. REMOVE FUEL INJECTION PUMP DRIVE GEAR FROM GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-114.)
3. REMOVE IDLER GEAR AND BEARING ASSEMBLY FROM GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-115.)

NOTE

Camshaft gear and crankshaft gear can bind during removal. Rotate crankshaft gear slightly to prevent binding.

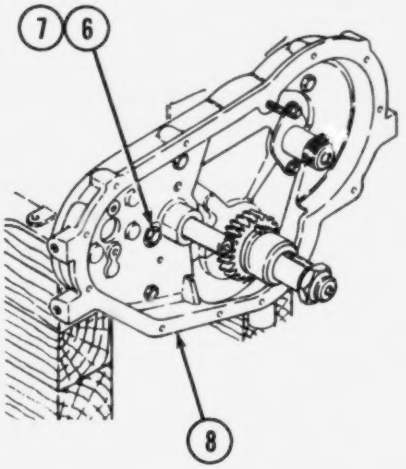
4. REMOVE CAMSHAFT GEAR FROM CAMSHAFT.
   - Remove nut (1) from camshaft (2). Use 1 5/8 inch socket with 1 inch drive impact wrench.
   - Install crankshaft nut (3) on crankshaft (4).
   - Rotate crankshaft (4), and remove camshaft gear (5) from camshaft (2). Use 1 5/8 inch socket with 3/4 inch drive hinged handle and mechanical puller. Use helper.



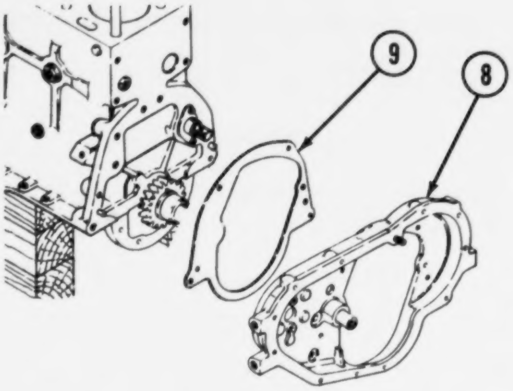
WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

5. REMOVE GEAR HOUSING FROM ENGINE.
   - Remove five screws (6) and lock washers (7) from gear housing (8). Use 3/4 inch socket with ratchet handle. Discard lock washers.



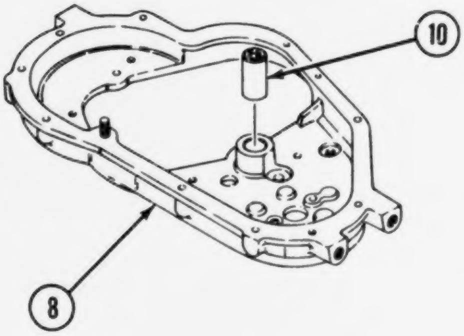
- Remove gear housing (8) from engine. Use soft faced hammer.
- Remove gasket (9) from gear housing (8). Use putty knife. Discard gasket.
- Clean mating surfaces of gear housing (8) and engine. Use putty knife, solvent, and rags.



NOTE

Do not remove idler gear shaft from front gear housing unless required for maintenance.

6. REMOVE IDLER GEAR SHAFT FROM FRONT GEAR HOUSING.
   - Remove shaft (10) from gear housing (8). Use arbor press.



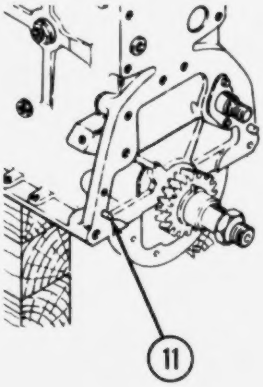
NOTE

Do not remove left or right dowels from engine unless required for maintenance.

• • • •

Left and right dowels are removed the same way. Step 7 shows right dowel.

7. REMOVE RIGHT DOWEL FROM ENGINE.
   - Remove dowel (11) from engine. Use plier wrench. Discard dowel.



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19-7 GEAR HOUSING AND GEARS — Continued

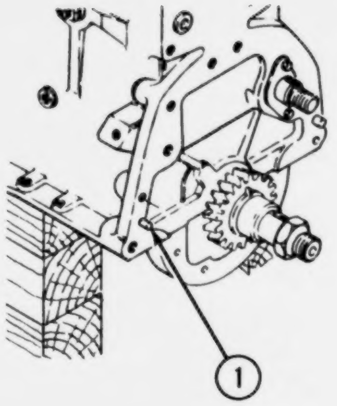
E. GEAR HOUSING INSTALLATION

NOTE

If dowels were not removed from engine, go to step 2.

• • • •

Left and right dowels are installed the same way. This procedure shows right dowel.



1. INSTALL NEW RIGHT DOWEL ON ENGINE.
   - Apply sealing compound to new dowel (1).
   - Install dowel (1) on engine. Use soft faced hammer.

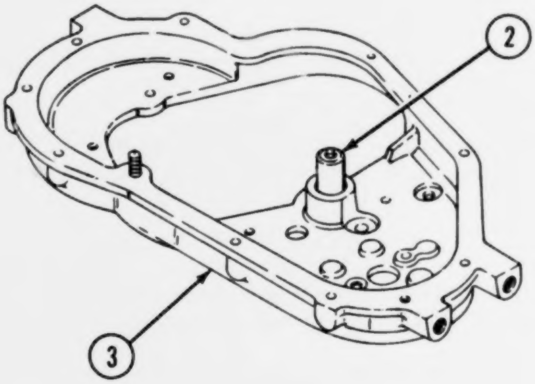
NOTE

If idler shaft was removed from gear housing, go to step 3.

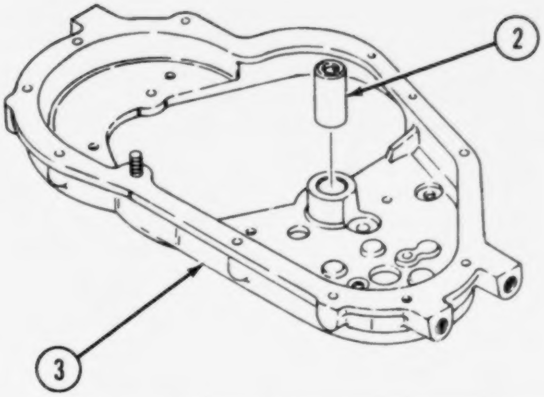
• • • •

Idler shaft must be checked for tight fit in front gear housing before installing idler gears. Idler shaft must withstand a pulling force of 32 lb (14.5 kg).

2. CHECK IDLER SHAFT FOR TIGHT FIT IN GEAR HOUSING.
   - Check shaft (2) for tight fit in gear housing (3). Use dial indicator scale. Shaft must withstand a pulling force of 32 lb (14.5 kg).
   - If shaft (2) is tight in gear housing (3), go to step 4.
   - If shaft (2) is loose in gear housing (3), remove shaft (2) from gear housing (3). (See Gear Housing and Gears, Page 19-117.)
   - Install idler shaft on gear housing. (See next step.)



3. INSTALL IDLER SHAFT ON GEAR HOUSING.
   - Apply light coat of sealing compound to shaft (2).
   - Install shaft (2) in gear housing (3). Use arbor press.



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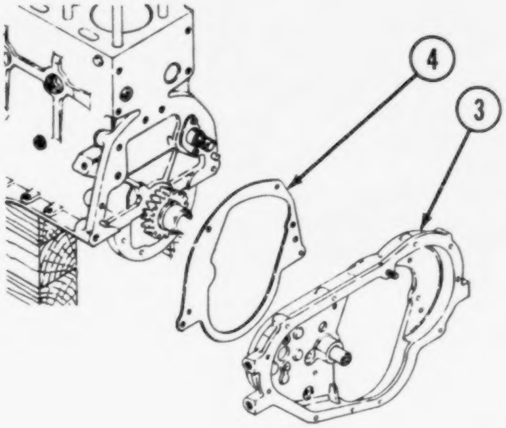
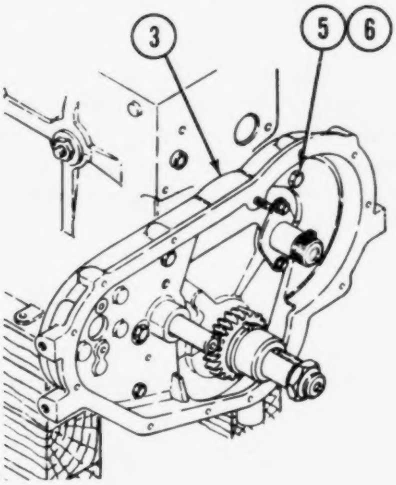
4. INSTALL GEAR HOUSING ON ENGINE.
   - Cement new housing gasket (4) on gear housing (3). Use adhesive sealant.
   - Position gear housing (3) on engine with mounting holes alined.



- Install gear housing (3), five new lock washers (5), and screws (6) on engine. Use 3/4 inch socket with ratchet handle. Do not tighten.



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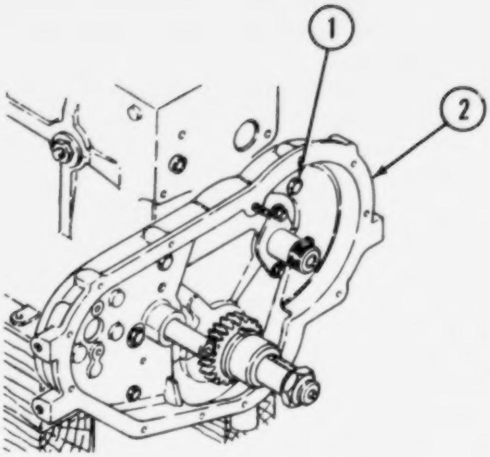
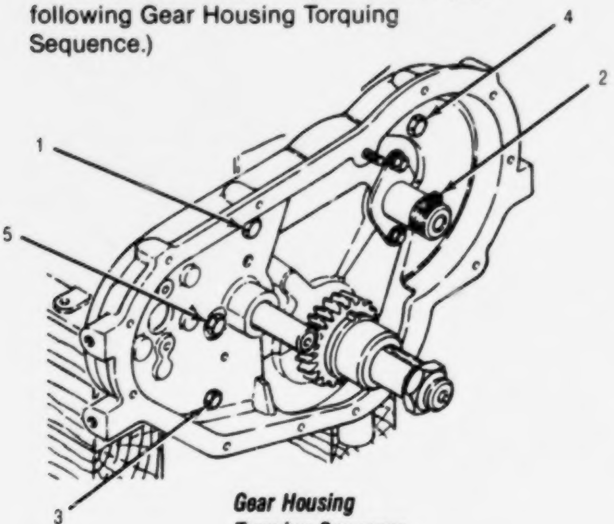
E. GEAR HOUSING INSTALLATION — Continued

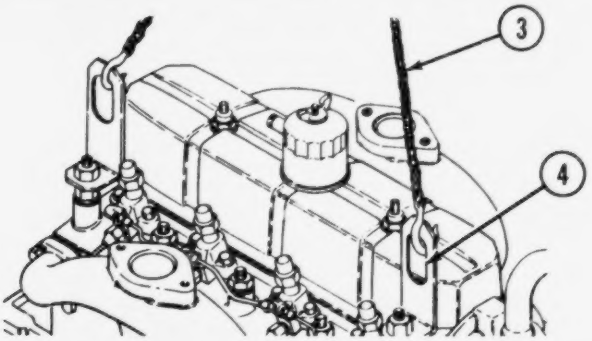
5. TORQUE FIVE SCREWS ON GEAR HOUSING.
   - Torque five screws (1) on gear housing (2) to 40 ft lb (5.5 mkg). Use 3/4 inch socket with 5 inch extension and torque wrench. (See following Gear Housing Torquing Sequence.)



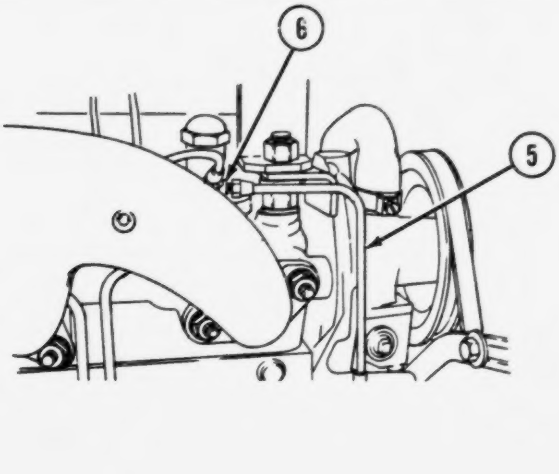


Gear Housing Torquing Sequence

6. REMOVE ENGINE AND TRANSMISSION SLING (3) FROM TWO LIFTING EYES (4) ON ENGINE.

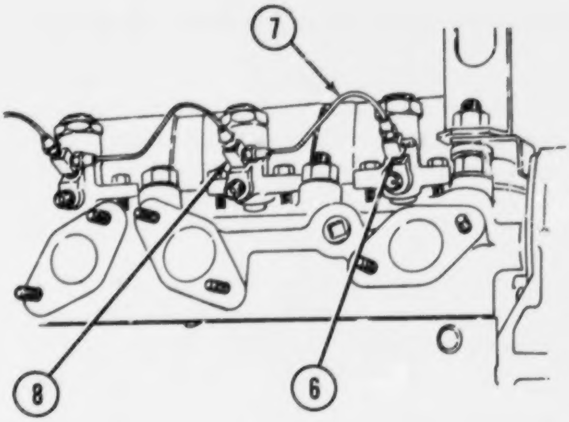


7. DISCONNECT FRONT LEAKOFF TUBE FROM NUMBER ONE FUEL NOZZLE ASSEMBLY.
   - Disconnect tube (5) from tee (6). Use 7/16 inch box and open end box wrench.
   - Plug tube, and cap tee.



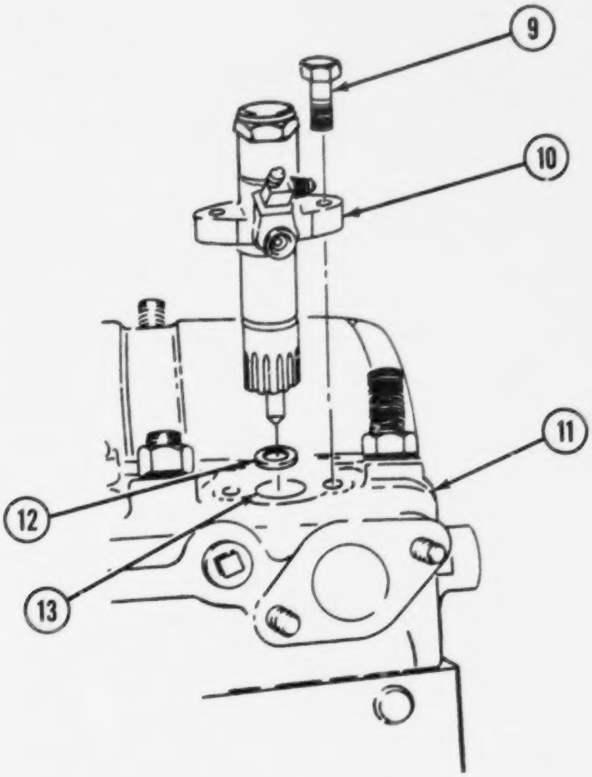
8. REMOVE FRONT TOP LEAKOFF TUBE FROM ENGINE.
   - Disconnect tube (7) from tee (6). Use 7/16 inch box and open end box wrench.
   - Disconnect tube (7) from tee (8). Use 7/16 inch box and open end box wrench.
   - Plug tube, and cap tees.
   - Remove tube (7) from engine.

9. REMOVE FRONT LIFTING EYE FROM ENGINE. (SEE TM 9-1095-205-20.)



EXHAUST MANIFOLD REMOVED FOR CLARITY

10. REMOVE NO. 1 NOZZLE ASSEMBLY FROM CYLINDER HEAD.
    - Remove two screws (9) and nozzle assembly (10) from cylinder head (11). Use 9/16 inch socket with ratchet handle.
    - Remove injector sleeve washer (12) from nozzle bore (13). Use machinist's scriber. Discard washer.



EXHAUST MANIFOLD REMOVED FOR CLARITY

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E. GEAR HOUSING INSTALLATION — Continued

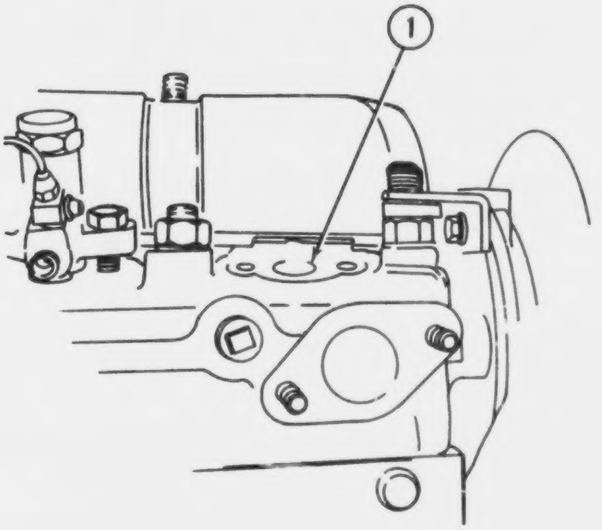
NOTE

Engine must be on compression stroke before camshaft gear is installed.

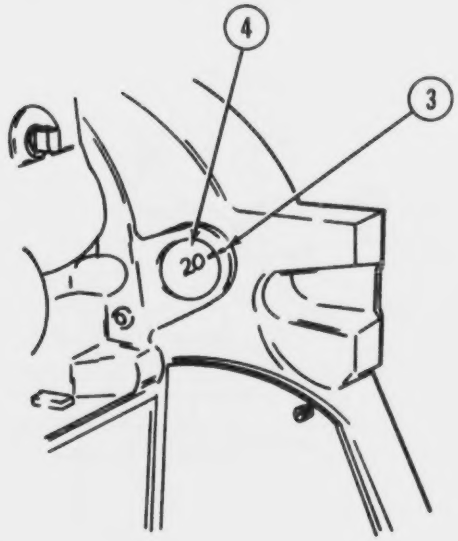
• • • •

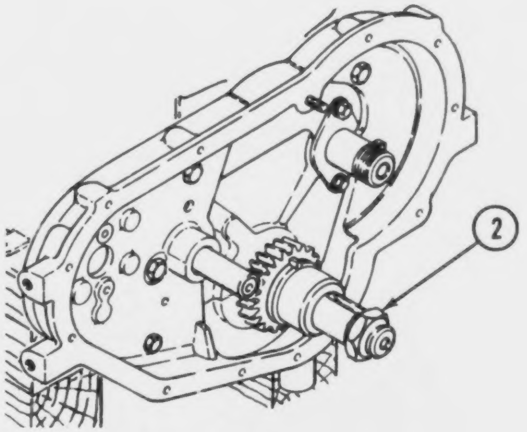
Number one piston is on compression stroke when air is forced from fuel nozzle assembly bore and flywheel timing line is on 20°.

11. SET NUMBER ONE PISTON AT 20° BEFORE TOP DEAD CENTER ON COMPRESSION STROKE.
    - Place thumb over fuel nozzle assembly bore (1).
    - Turn crankshaft nut (2) to right until air is forced from bore (1) and timing line (3) is on 20° (4). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.
    - Plug fuel nozzle assembly bore (1). Use rag.



EXHAUST MANIFOLD REMOVED FOR CLARITY

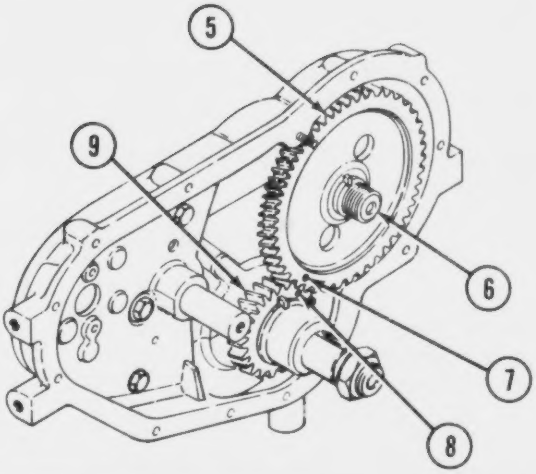




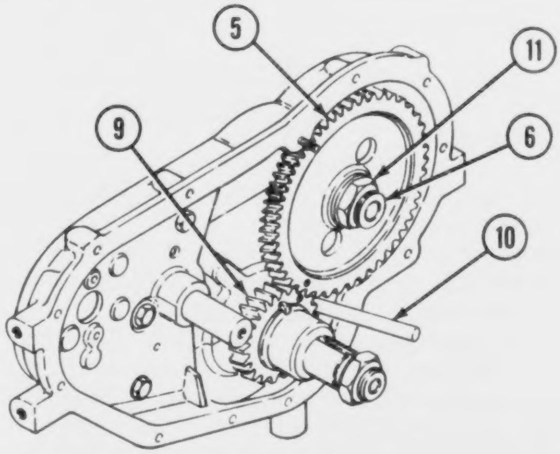
NOTE

Camshaft gear and crankshaft gear can bind during camshaft installation. Rotate crankshaft gear slightly to prevent binding.

12. INSTALL CAMSHAFT GEAR ON CAMSHAFT.
    - Position camshaft gear (5) on camshaft (6) so camshaft gear timing mark (7) and crankshaft timing mark (8) will be alined.
    - Rotate crankshaft gear (9), and tap camshaft gear (5) on camshaft (6). Use soft faced hammer and 1 5/8 inch socket with 3/4 inch drive hinged handle.



- Insert 1/2 inch brass rod (10) between camshaft gear (5) and crankshaft gear (9).
- Install nut (11) on camshaft (6). Use 1 5/8 inch socket with 3/4 inch drive ratchet handle.
- Torque nut (11) to 125 — 135 ft lb (17.3 — 18.7 mkg). Use 1 5/8 inch socket with 3/4 inch drive torque wrench.
- Remove brass rod (10) from engine.



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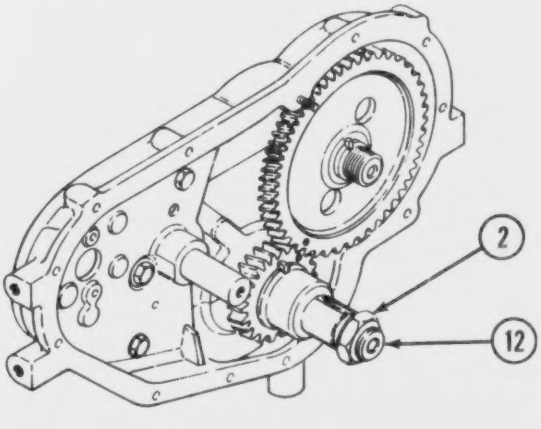
13. REMOVE CRANKSHAFT NUT FROM CRANKSHAFT.
    - Remove nut (2) from crankshaft (12). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



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E. GEAR HOUSING INSTALLATION — Continued

14. INSTALL IDLER GEAR AND BEARING ASSEMBLY ON GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-124.)

15. INSTALL FUEL INJECTION PUMP DRIVE GEAR ON GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-125.)

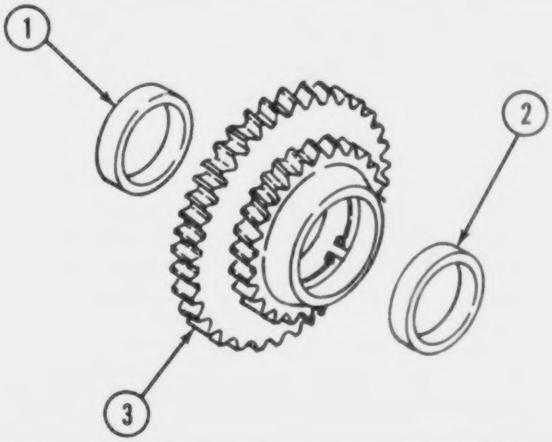
16. INSTALL GEAR HOUSING COVER ON ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-125.)

F. IDLER GEAR AND BEARING ASSEMBLY INSTALLATION

NOTE

Support rear bearing cup when installing front bearing cup in idler gear and bearing assembly.

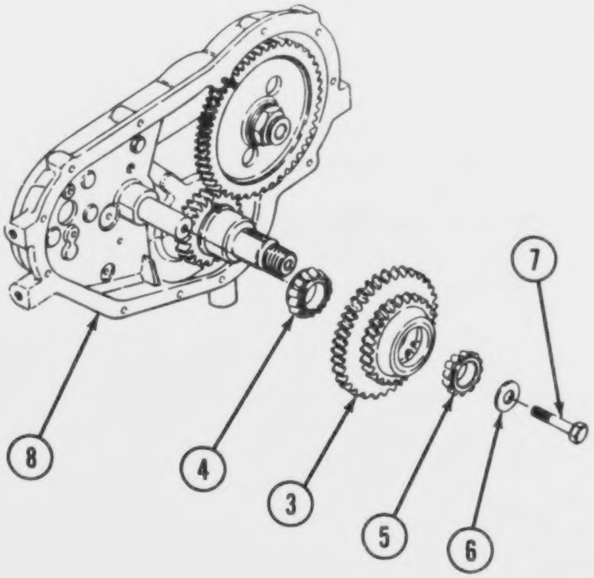
1. INSTALL NEW FRONT AND REAR BEARING CUPS IN IDLER GEAR AND BEARING ASSEMBLY.
   - Install new front and rear bearing cups (1) and (2) in idler gear and bearing assembly (3). Use arbor press.



2. INSTALL IDLER GEAR AND BEARING ASSEMBLY ON GEAR HOUSING.
   - Install new rear bearing (4), idler gear and bearing assembly (3), new front bearing (5), washer (6), and screw (7) on gear housing (8). Use 7/16 inch socket with ratchet handle.
   - Torque screw (7) to 25 ft lb (3.5 mkg). Use 7/16 inch socket with torque wrench.

3. INSTALL FUEL INJECTION PUMP DRIVE GEAR ON GEAR HOUSING. (SEE GEAR HOUSING AND GEARS, PAGE 19-125.)

4. INSTALL GEAR HOUSING COVER ON ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-125.)



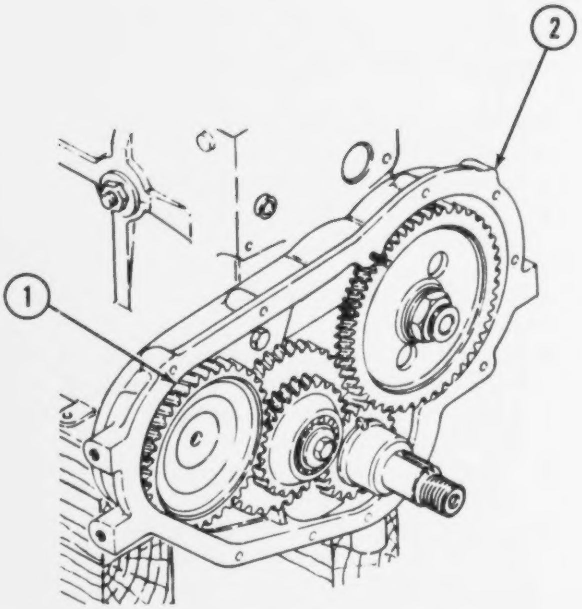
G. FUEL INJECTION PUMP DRIVE GEAR INSTALLATION

CAUTION

Fuel injection pump drive gear can fall and be damaged. Do not rotate gears until gear housing cover has been installed.

1. PLACE FUEL INJECTION PUMP DRIVE GEAR (1) ON GEAR HOUSING (2).

2. INSTALL GEAR HOUSING COVER ON ENGINE. (SEE GEAR HOUSING AND GEARS, PAGE 19-125.)

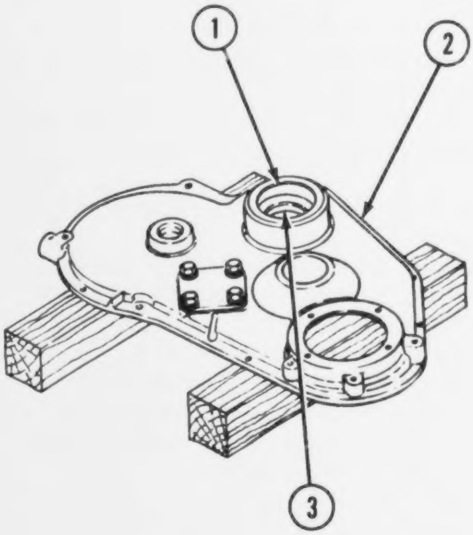


H. GEAR HOUSING COVER INSTALLATION

NOTE

Do not apply sealing compound to new oil seal if oil seal is precoated.

1. INSTALL NEW OIL SEAL ON GEAR HOUSING COVER.
   - Apply sealing compound to bore (1) in gear housing cover (2).
   - Install new oil seal (3) on gear housing cover (2). Use soft faced hammer.



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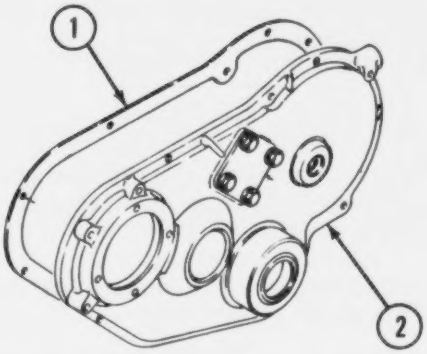
H. GEAR HOUSING COVER INSTALLATION — Continued



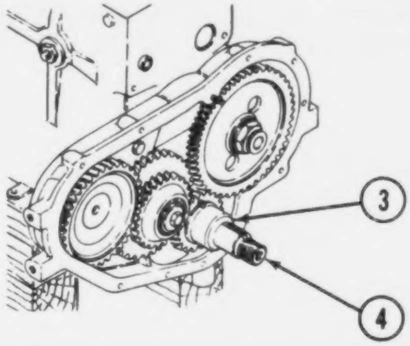
NOTE

Adhesive sealant is used to secure gasket to gear housing cover only. Do not apply adhesive to both sides of gasket.

2. INSTALL NEW COVER GASKET ON GEAR HOUSING COVER.
   - Apply adhesive sealant to new gasket (1).
   - Install gasket (1) on gear housing cover (2) with holes alined.

---

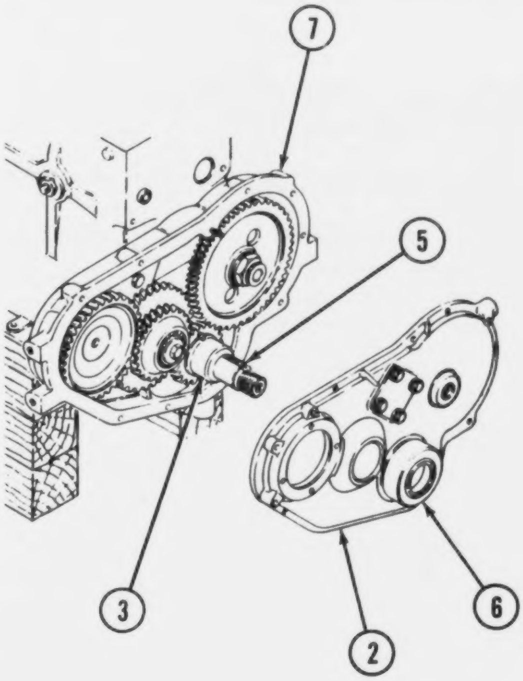
3. MEASURE CRANKSHAFT SEALING SURFACE FOR WEAR.
   - Measure crankshaft sealing surface (3) for wear. Use micrometer. Crankshaft sealing surface must be at least 1.8600 in. (4.7244 cm) diameter.
   - If wear measurement is not correct, crankshaft (4) is faulty.
   - If wear measurement is correct, install gear housing cover, with new gasket, on gear housing. (See next step.).



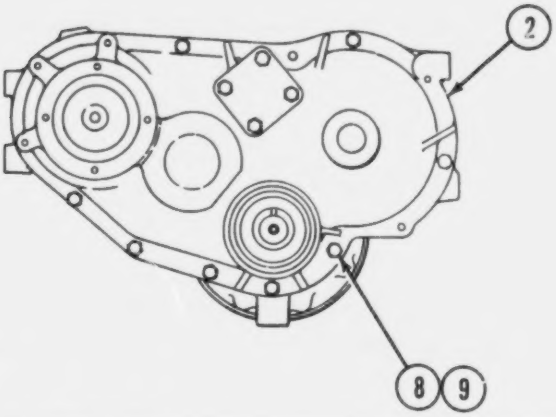
CAUTION

Crankshaft keyway can damage oil seal during front gear housing cover installation. Cover crankshaft keyway with plastic sheet to protect oil seal.

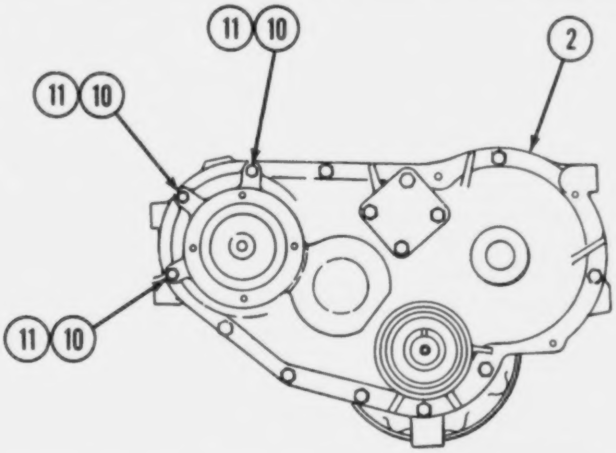
4. INSTALL GEAR HOUSING COVER, WITH NEW GASKET, ON GEAR HOUSING.
   - Cover crankshaft keyway (5). Use plastic sheet.
   - Apply light coat of oil to oil seal (6) and crankshaft sealing surface (3).
   - Slide gear housing cover (2) over crankshaft sealing surface (3), and position gear housing cover on gear housing (7) with mounting holes alined.
   - Remove plastic sheet from crankshaft keyway (5). Discard plastic sheet.



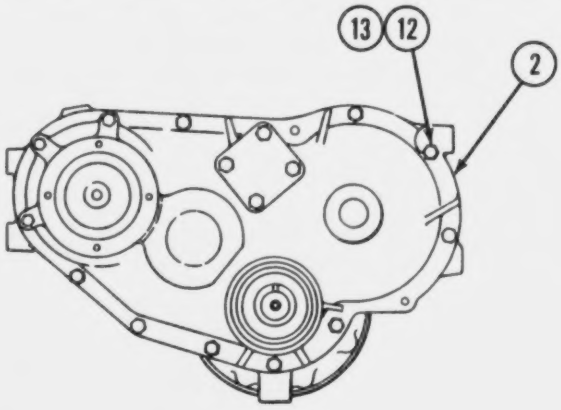
- Install eight new lock washers (8) and screws (9) on gear housing cover (2).



- Install three new lock washers (10) and screws (11) on gear housing cover (2).



- Install new lock washer (12) and screw (13) on gear housing cover (2).



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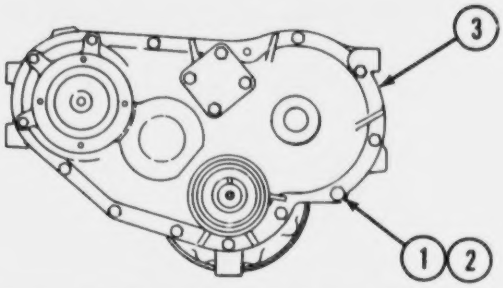
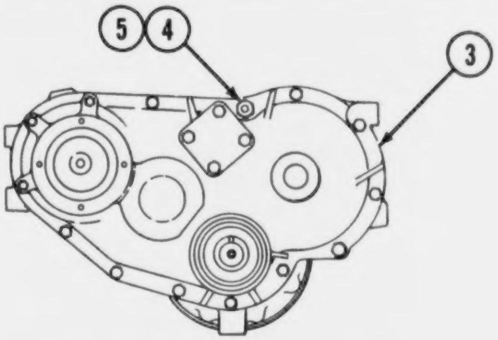
H. GEAR HOUSING COVER INSTALLATION — Continued

- Install new lock washer (1) and screw (2) on gear housing cover (3).



- Install new lock washer (4) and nut (5) on gear housing cover (3).



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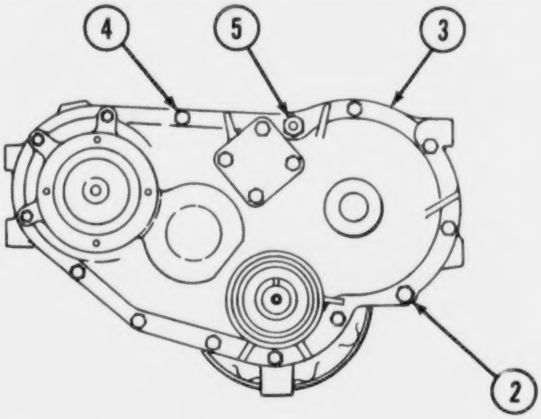
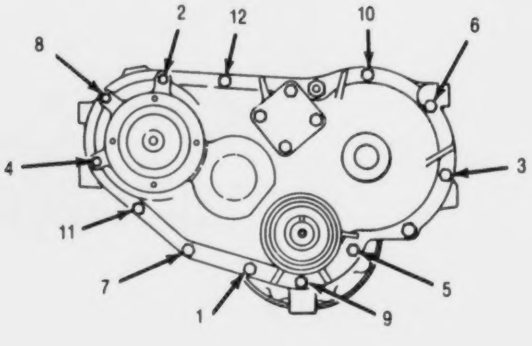
5. TORQUE NUT AND 13 SCREWS ON FRONT GEAR HOUSING.
   - Torque nut (5) on gear housing cover (3) to 15 ft lb (2.1 mkg). Use 3/4 inch socket with torque wrench.
   - Torque screw (2) on gear housing cover (3). Use 3/4 inch socket with 3/8 inch drive torque wrench.
   - Torque 12 screws (4) on gear housing cover (3) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with torque wrench. (See following Gear Housing Cover Torquing Sequence.)

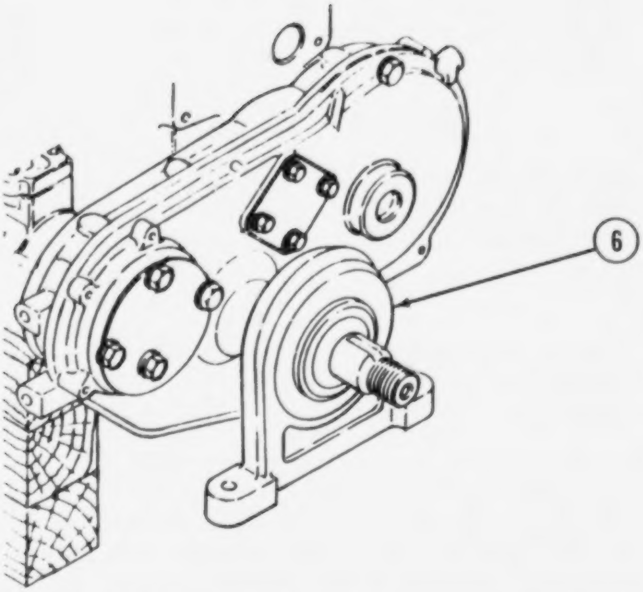




Gear Housing Cover Torquing Sequence

6. INSTALL FRONT ENGINE SUPPORT (6) ON ENGINE.

7. INSTALL FRONT LIFTING EYE ON ENGINE. (SEE TM 9-1095-205-20.)



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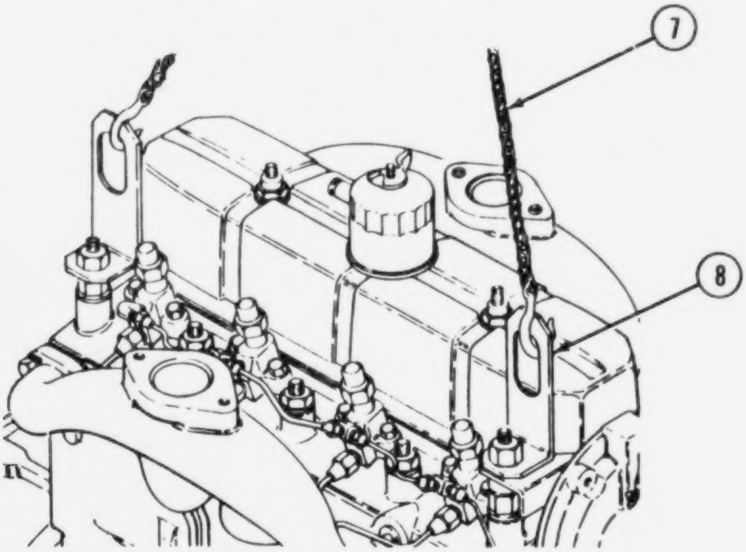
8. INSTALL ENGINE AND TRANSMISSION SLING (7) ON TWO LIFTING EYES (8) ON ENGINE.



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H. GEAR HOUSING COVER INSTALLATION — Continued

WARNING

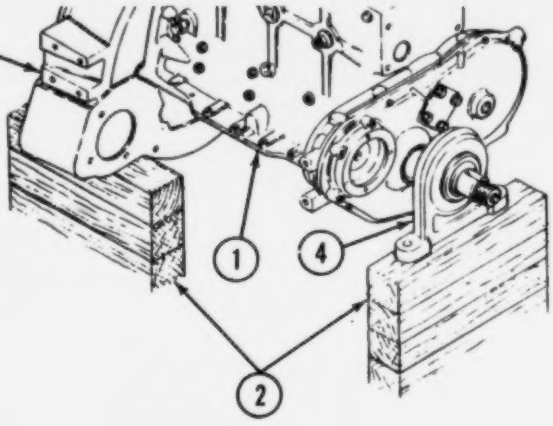
Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

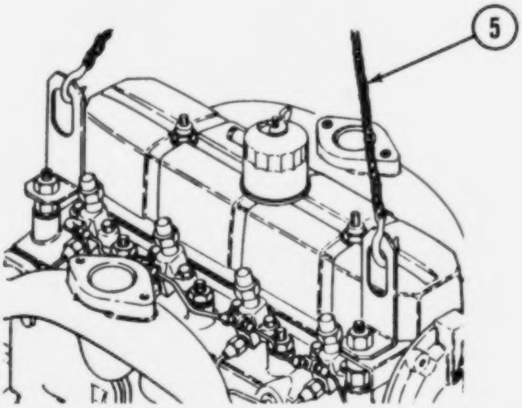
NOTE

Wood blocks must be secured together to prevent them from slipping out from under bell housing.

• • • •

Support diesel engine with enough wood blocks to allow 14 1/4 in. (36.2 cm) of clearance under cylinder block.





9. REPOSITION WOOD BLOCKS UNDER BELL HOUSING AND FRONT ENGINE SUPPORT.
   - Raise engine high enough to allow 14 1/4 in. (36.2 cm) of clearance under cylinder block (1). Use hoist and measuring tape. Use helper.
   - Reposition wood blocks (2) under bell housing (3) and front engine support (4).
   - Lower engine onto wood blocks (2). Use hoist. Use helper.
   - Release tension in engine and transmission sling (5).

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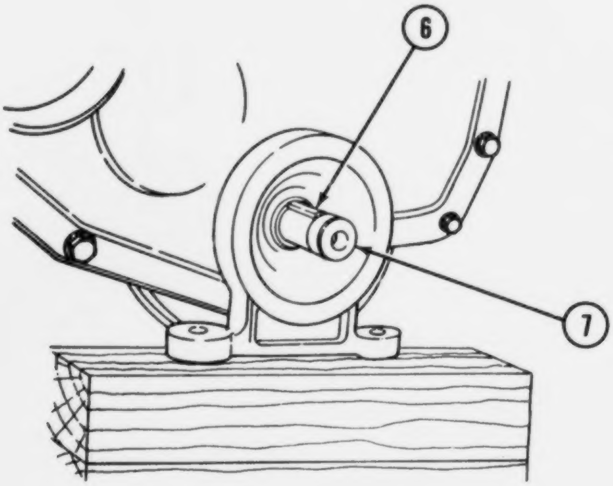
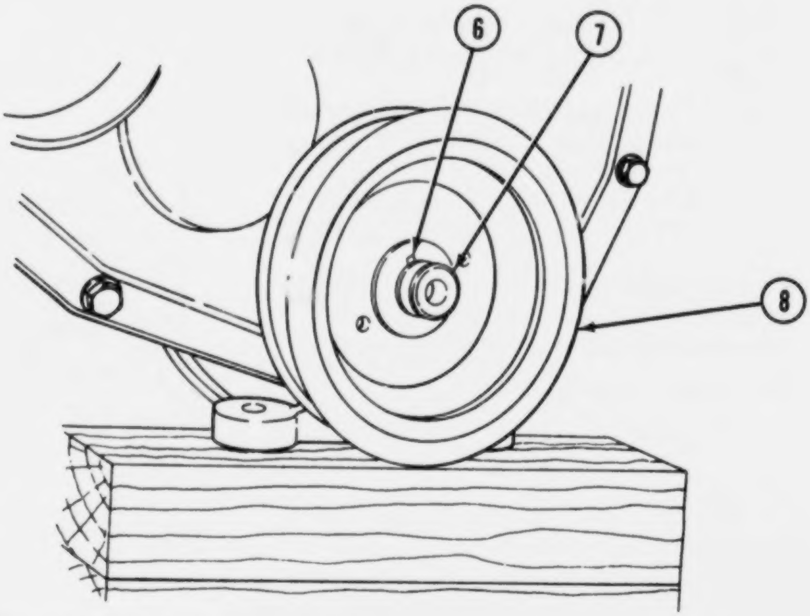
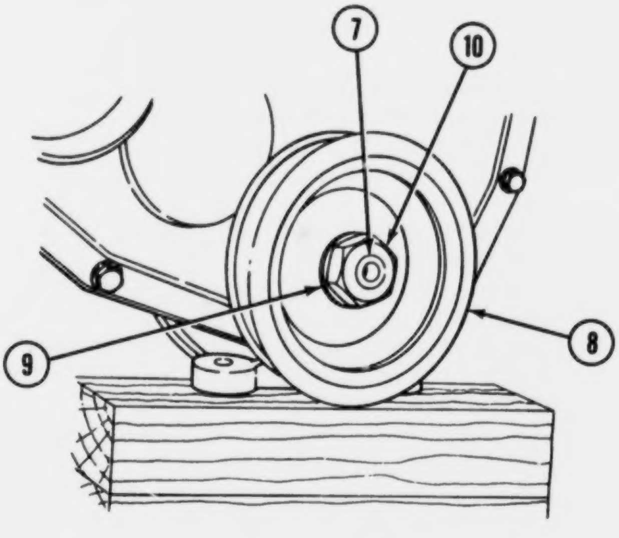
10. INSTALL CRANKSHAFT PULLEY ON CRANKSHAFT.
    - Install woodruff key (6) on crankshaft (7). Use soft faced hammer.



- Install pulley (8) over woodruff key (6) on crankshaft (7). Use soft faced hammer.



- Install new lock washer (9) and nut (10) on crankshaft (7). Use 1 5/8 inch socket with 3/4 inch drive ratchet handle.
- Hold pulley (8). Use strap wrench.
- Torque nut (10) to 125 ft lb (17.3 mkg). Use 1 5/8 inch socket with 3/4 inch drive torque wrench. Use helper.



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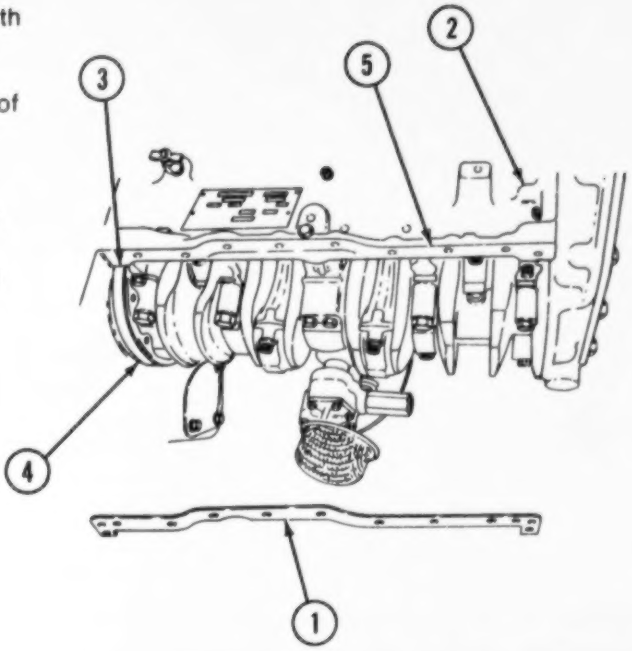
H. GEAR HOUSING COVER INSTALLATION — Continued

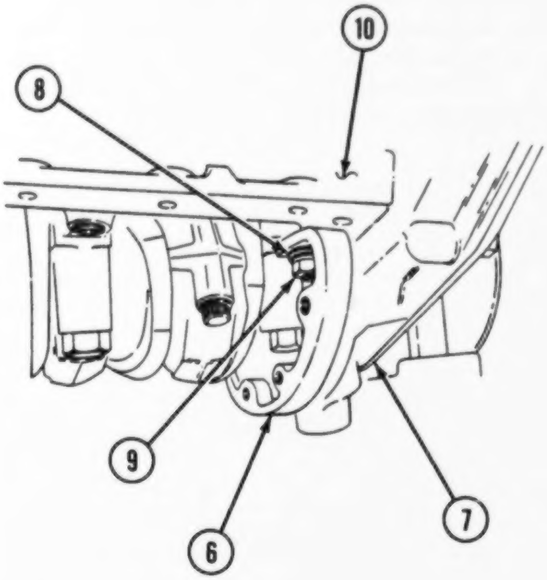
11. INSTALL NEW GASKET ON ENGINE CYLINDER BLOCK.
    - Aline mounting holes in new gasket (1) with mounting holes in cylinder block (2). Use helper.
    - Cut ends of gasket (1) to fit against ends of old gasket (3) under rear adapter (4). Use pocket knife.
    - Apply adhesive sealant to cylinder block mating surface (5) and ends of old gasket (3).
    - Install gasket (1) on cylinder block mating surface (5) with ends of gasket (1) contacting ends of old gasket (3).



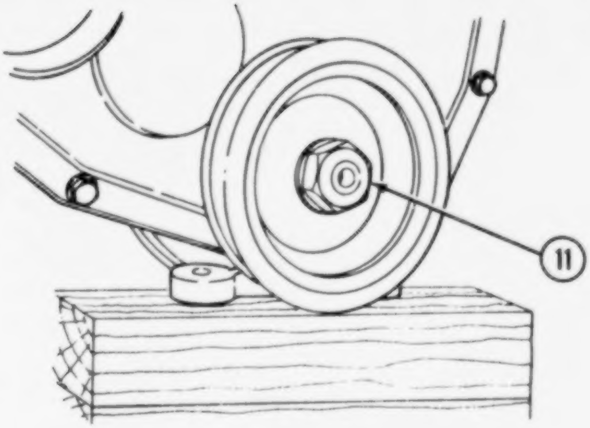
NOTE

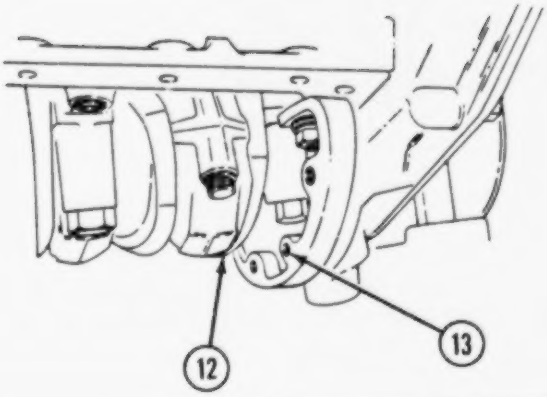
Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

12. INSTALL FRONT ADAPTER ON ENGINE GEAR HOUSING.
    - Position adapter (6) on gear housing (7) with mounting holes alined.
    - Install adapter (6), two new lock washers (8), and nuts (9) on cylinder block (10).
    - Torque nuts (9) to 15 ft lb (2.1 mkg). Use 1/2 inch crowfoot with 5 inch extension and 3/8 inch drive torque wrench.

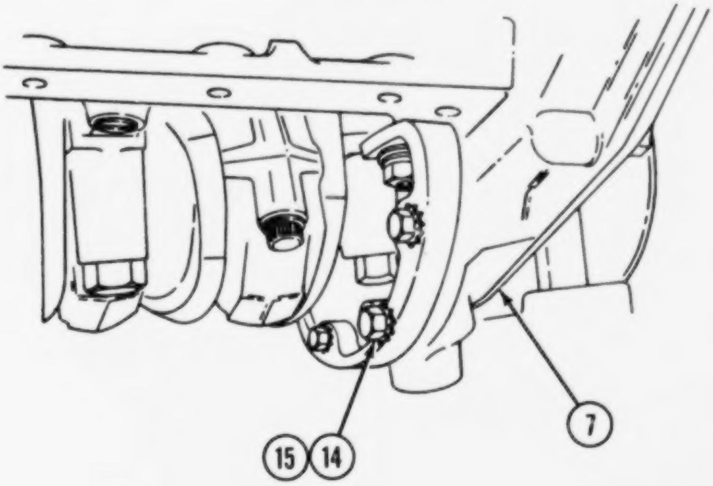


- Turn crankshaft nut (11) to right until crankshaft (12) is clear of adapter mounting holes (13). Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.





- Install four new lock washers (14) and screws (15) on gear housing (7).
- Torque four screws (15) to 15 ft lb (2.1 mkg). Use 9/16 inch socket with torque wrench.



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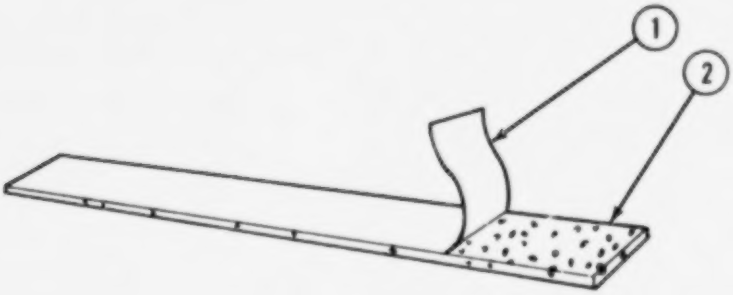
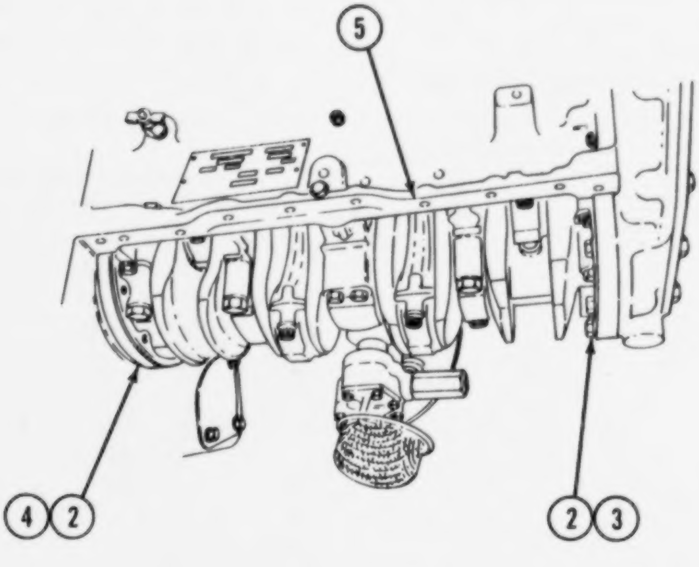
H. GEAR HOUSING COVER INSTALLATION — Continued

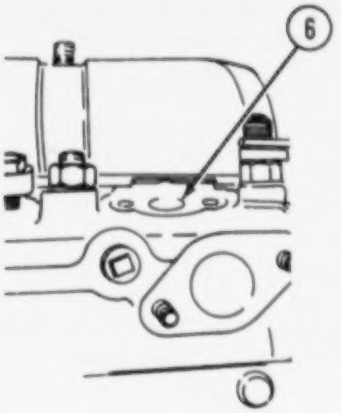
13. INSTALL TWO NEW OIL PAN ASSEMBLY END SEALS ON FRONT AND REAR ADAPTERS.
    - Remove protective covers (1) from two new seals (2). Discard covers.

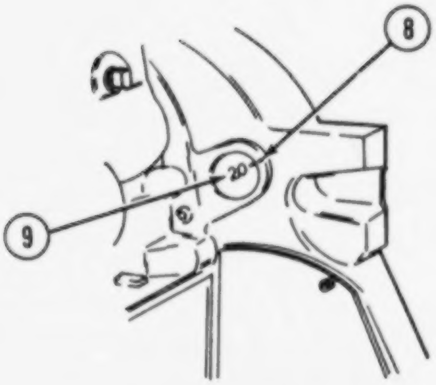


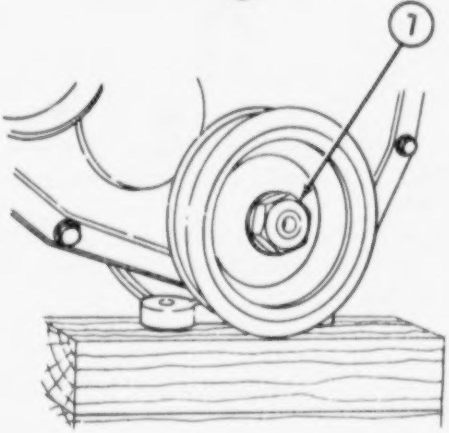
- Install seals (2) on front adapter (3) and rear adapter (4) with both ends of seals contacting oil pan gasket (5).



14. SET NUMBER ONE CYLINDER AT 20° BEFORE TOP DEAD CENTER ON COMPRESSION STROKE.
    - Remove plug from number one cylinder fuel nozzle bore (6).
    - Place thumb over bore (6).
    - Turn crankshaft nut (7) to right until air is forced from bore (6) and timing line (8) is on 20° (9). Use 1 5/8 inch socket with 3/4 inch drive hinged handle. Use helper.
    - Plug bore (6). Use rag.







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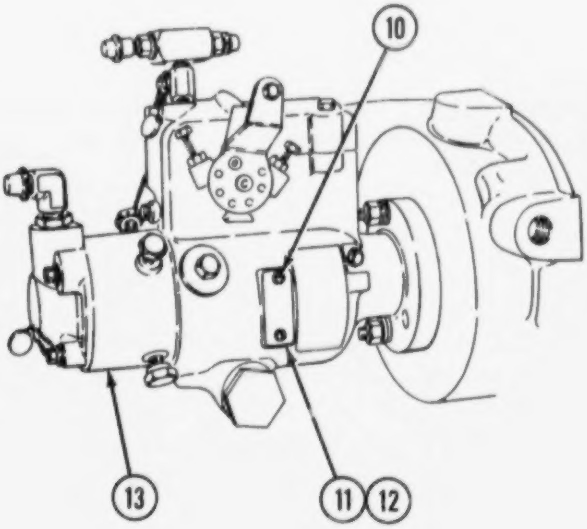
15. REMOVE TIMING COVER FROM FUEL INJECTION PUMP.
    - Remove two screws (10), timing cover (11), and cover gasket (12) from pump (13). Use 1/4 inch flat tip screwdriver. Discard gasket.



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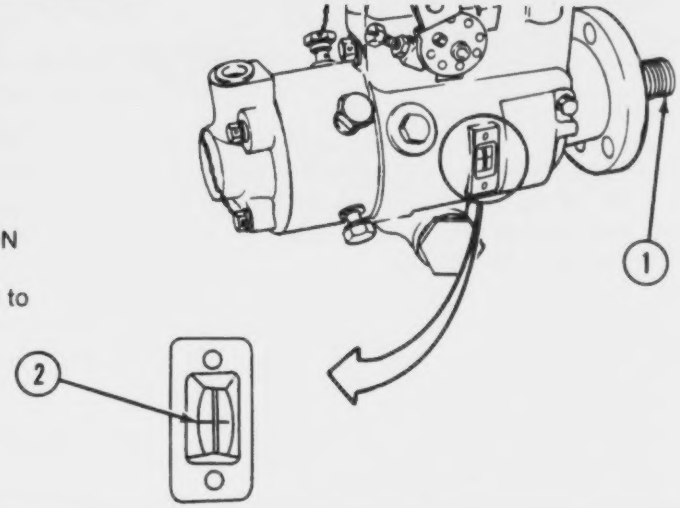
H. GEAR HOUSING COVER INSTALLATION — Continued

CAUTION

Fuel injection pump can be damaged if internal parts are turned the wrong way. Turn fuel injection pump drive shaft to right only.

16. ALINE TIMING LINES IN FUEL INJECTION PUMP.
    - Turn fuel injection pump drive shaft (1) to right until timing lines (2) are alined.



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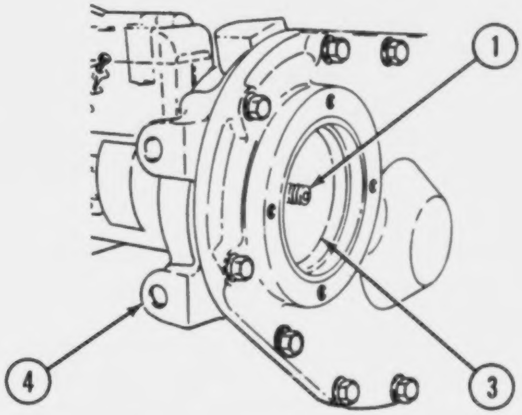
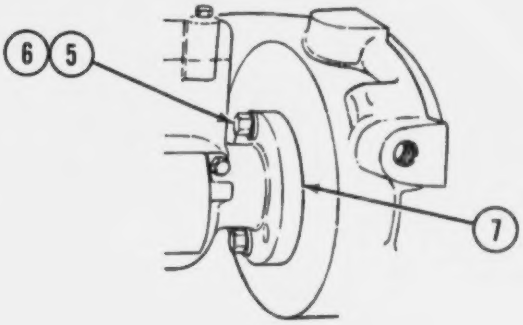
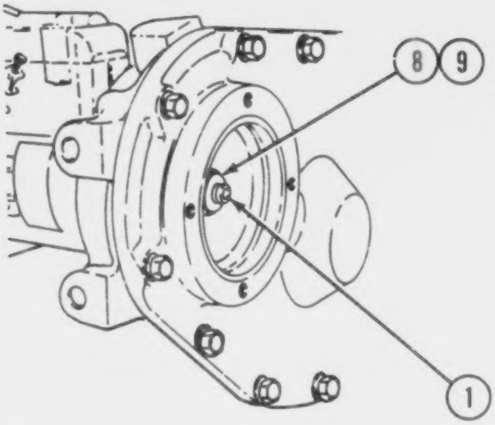
17. INSTALL FUEL INJECTION PUMP ON GEAR HOUSING.
    - Install fuel injection pump drive shaft (1) through fuel injection pump drive gear (3) in gear housing (4).



- Install two washers (5) and screws (6) on pump (7).



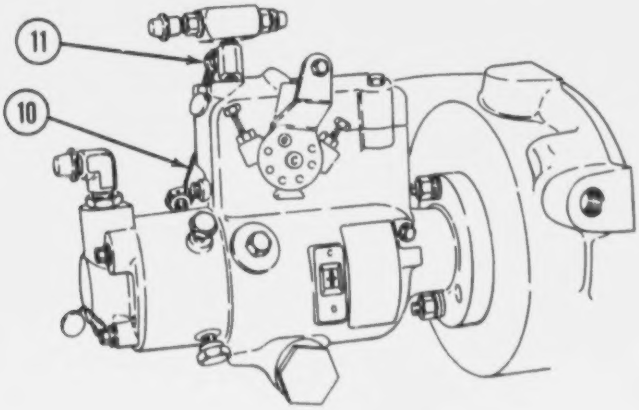
- Install new lock washer (8) and nut (9) on fuel injection pump drive shaft (1).
- Torque nut (9) to 65 ft lb (9.0 mkg). Use 7/8 inch socket with torque wrench.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

18. REMOVE SAFETY WIRE FROM THROTTLE CONTROL LEVER.
    - Remove safety wire (10) from lever (11). Use diagonal cutting pliers.



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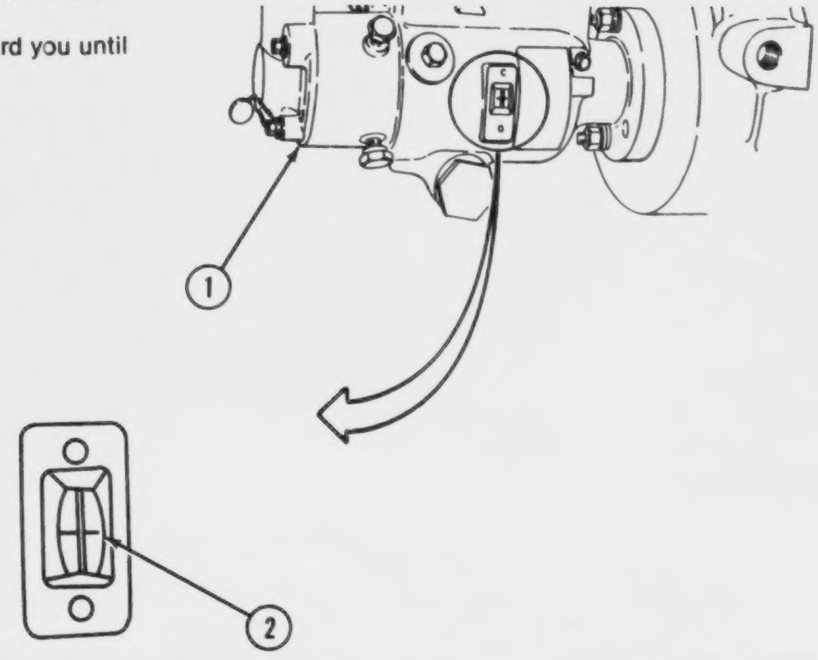
H. GEAR HOUSING COVER INSTALLATION — Continued

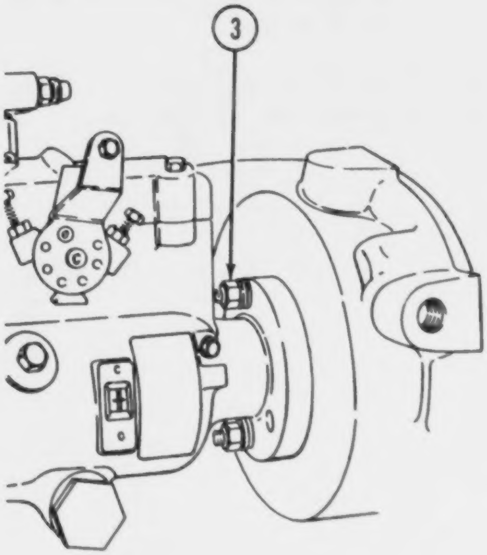
19. ALINE FUEL INJECTION PUMP TIMING LINES.
    - Move top of pump (1) toward you until timing lines (2) are alined.



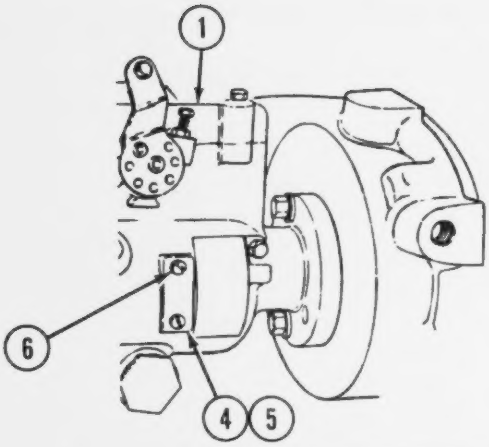
NOTE

Torque wrench dial reading is low when using torque adapter. To apply correct torque, read reference material supplied with torque wrench.

20. TORQUE FUEL INJECTION PUMP SCREWS.
    - Torque two screws (3) to 15 ft lb (2.1 mkg). Use 9/16 inch crowfoot attachment with 3/8 inch drive torque wrench.



21. INSTALL TIMING COVER ON FUEL INJECTION PUMP.
    - Install new cover gasket (4), timing cover (5), and two screws (6) on pump (1). Use 1/4 inch flat tip screwdriver.



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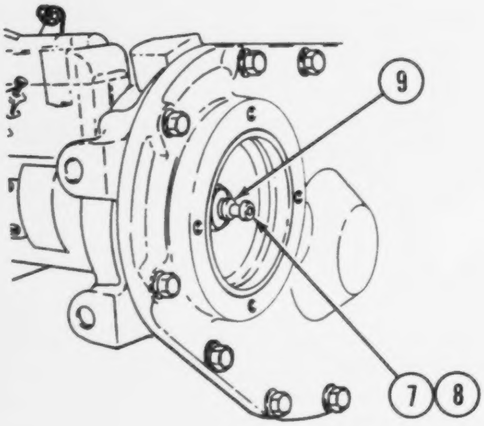
22. INSTALL SPRING (7) AND THRUST PLUG (8) ON FUEL INJECTION PUMP DRIVE SHAFT (9).



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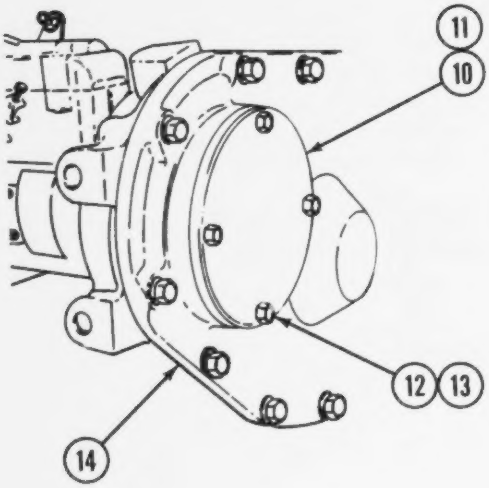
23. INSTALL THRUST PLATE ON GEAR HOUSING.
    - Install new plate gasket (10), thrust plate (11), four new copper gaskets (12) and screws (13) on gear housing cover (14). Use 9/16 inch socket with ratchet handle.



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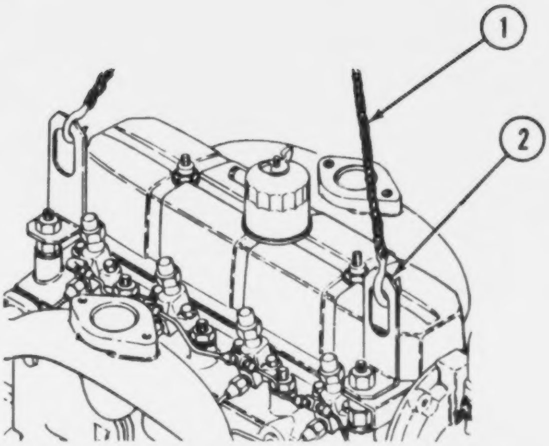
H. GEAR HOUSING COVER INSTALLATION — Continued

24. REMOVE ENGINE AND TRANSMISSION SLING (1) FROM TWO LIFTING EYES (2) ON ENGINE.

25. REMOVE FRONT LIFTING EYE FROM ENGINE. (SEE TM 9-1095-205-20.)



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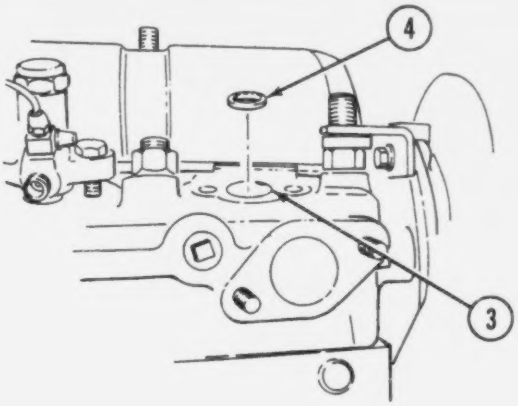
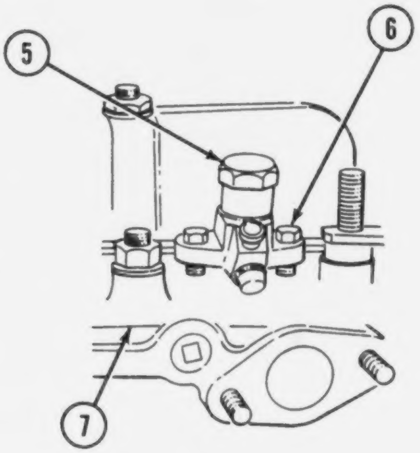
26. INSTALL NUMBER ONE FUEL NOZZLE ASSEMBLY ON CYLINDER HEAD.
    - Remove plug from fuel nozzle bore (3).
    - Install new injector sleeve washer (4) in fuel nozzle bore (3).



EXHAUST MANIFOLD REMOVED FOR CLARITY

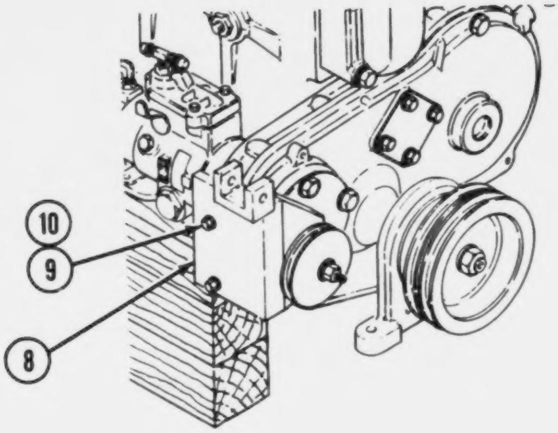
- Install fuel nozzle assembly (5) and two screws (6) on cylinder head (7).
- Torque two screws (6) to 25 — 30 ft lb (3.5 — 4.2 mkg). Use 9/16 inch socket with 5 inch extension and torque wrench.

27. INSTALL FRONT LIFTING EYE ON ENGINE. (SEE TM 9-1095-205-20.)



EXHAUST MANIFOLD REMOVED FOR CLARITY

28. INSTALL BRACKET ASSEMBLY ON ENGINE.
    - Install bracket assembly (8), two new lock washers (9) and screws (10) on engine. Use 3/4 inch socket with ratchet handle.



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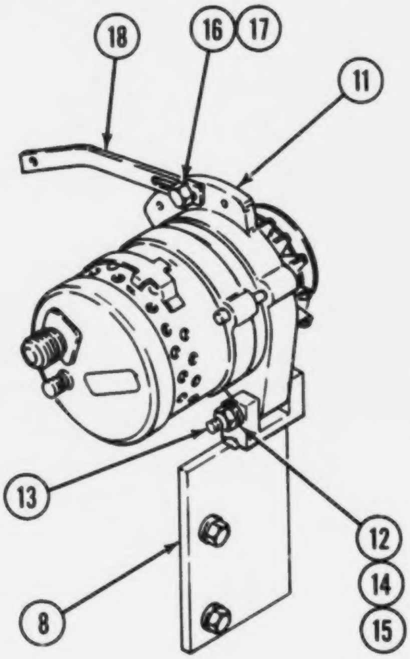
29. INSTALL ALTERNATOR ON BRACKET ASSEMBLY.
    - Install alternator (11), washer (12), screw (13), new lock washer (14), and nut (15) on bracket assembly (8). Use 3/4 inch box end wrench and 3/4 inch socket with ratchet handle. Do not tighten.
    - Install new lock washer (16) and screw (17) on alternator adjusting strap (18). Use 1/2 inch socket with ratchet handle.



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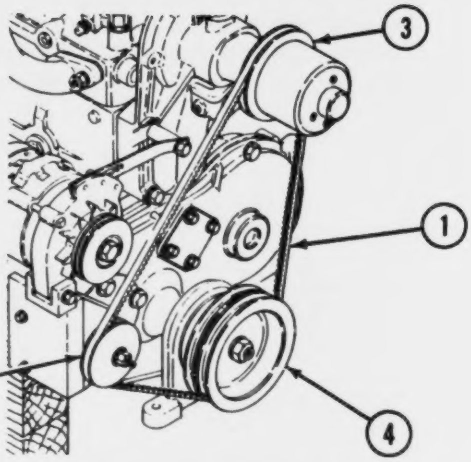
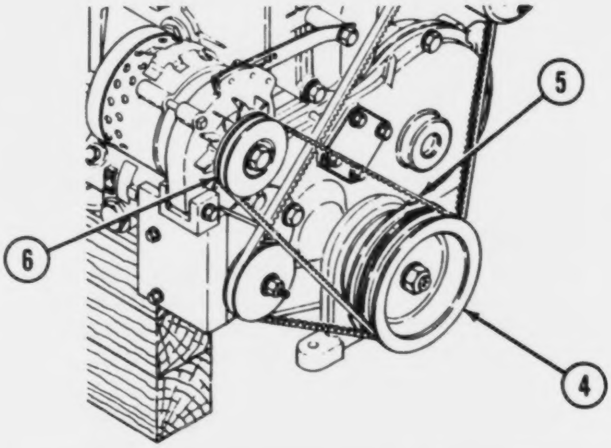
H. GEAR HOUSING COVER INSTALLATION — Continued



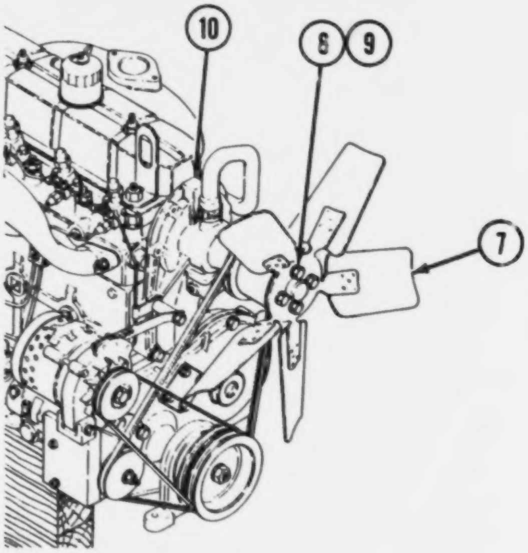
30. INSTALL FAN BELT ON ENGINE.
    - Install fan belt (1) on idler pulley (2), fan pulley (3), and crankshaft pulley (4).
    - Slide idler pulley (2) away from engine to secure fan belt (1).

31. ADJUST FAN BELT. (SEE TM 9-1095-205-20.)



32. INSTALL ALTERNATOR BELT ON ENGINE.
    - Install alternator belt (5) on alternator pulley (6) and crankshaft pulley (4).

33. ADJUST ALTERNATOR DRIVE BELT. (SEE TM 9-1095-205-20.)

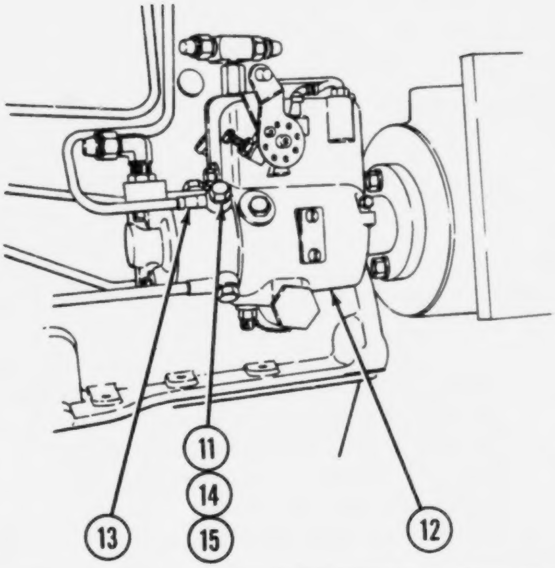


4. INSTALL FAN ON WATER PUMP ASSEMBLY.
    - Install fan (7), four new lock washers (8), and screws (9) on water pump assembly (10). Use 1/2 inch socket with ratchet handle.

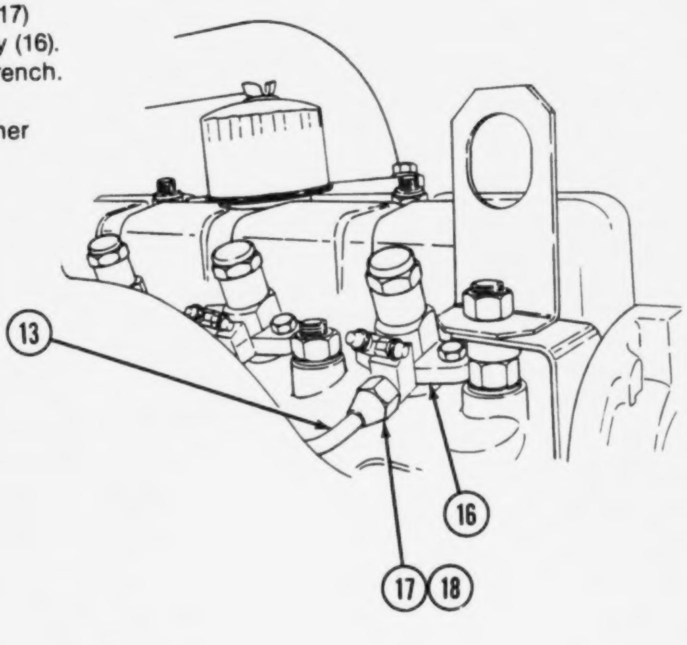
WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

35. INSTALL FOUR FUEL INJECTION TUBES ON ENGINE.
    - Remove screw (11) from fuel injection pump (12).
    - Remove plug from front tube (13).
    - Install new gasket (14), tube (13), new gasket (15), and screw (11) on fuel injection pump (12). Do not tighten.
    - Repeat above installation steps for other front tube and two rear tubes.



- Remove plug and cap from front tube (13) and fuel nozzle assembly (16).
- Connect front tube (13) with tube nut (17) and ferrule (18) to fuel nozzle assembly (16). Use 3/4 inch box and open end box wrench.
- Remove tag from tube (13).
- Repeat above installation steps for other front tube and two rear tubes.



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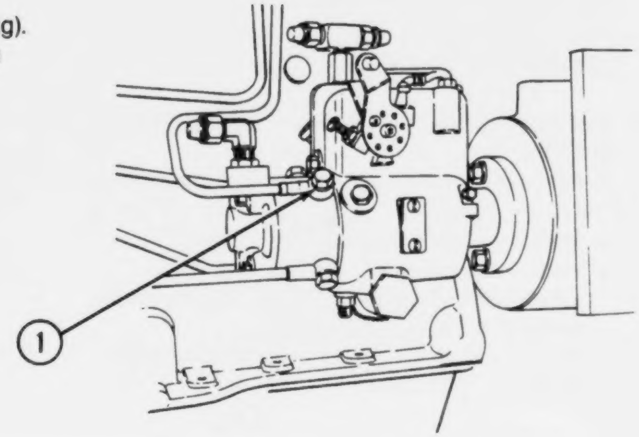
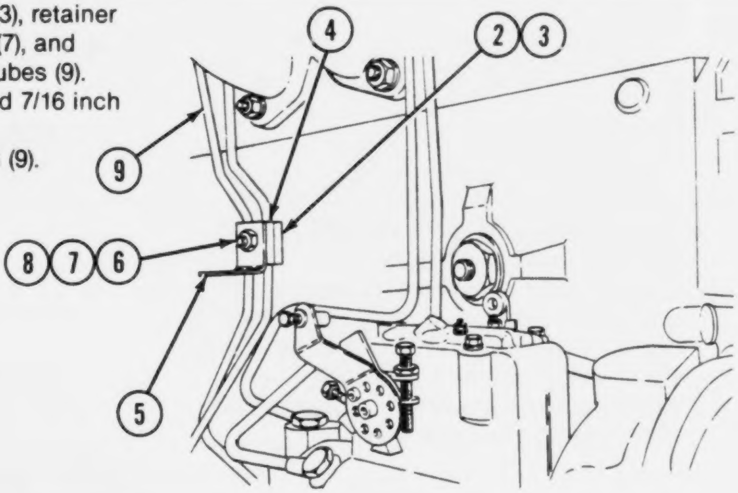
H. GEAR HOUSING COVER INSTALLATION — Continued

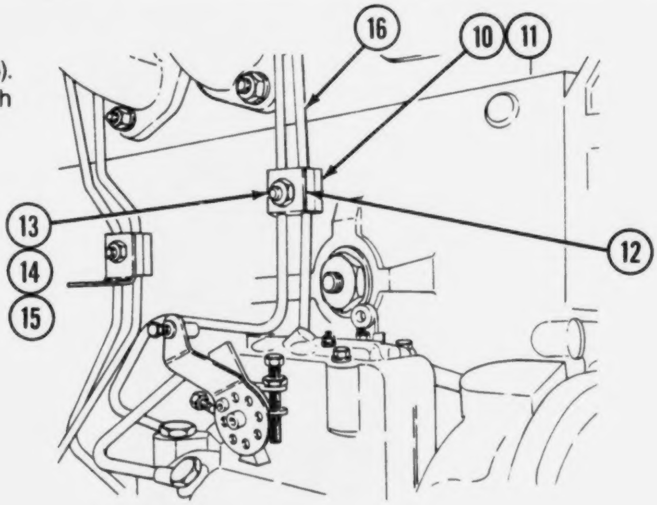
- Torque four screws (1) to 35 ft lb (4.8 mkg). Use 9/16 inch torque wrench adapter with torque wrench.



- Install retainer (2), two cushions (3), retainer (4), bracket (5), screw (6), washer (7), and new retainer nut (8) on two rear tubes (9). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle.
- Remove tags from two rear tubes (9).



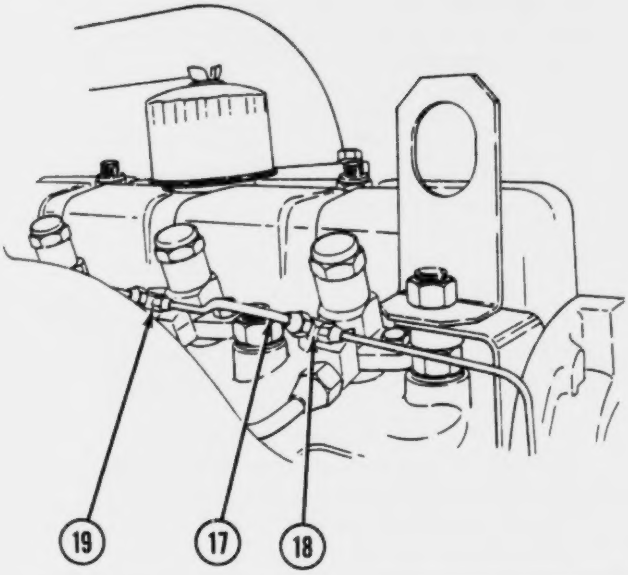
- Install retainer (10), two cushions (11), retainer (12), screw (13), washer (14), and new retainer nut (15) on two front tubes (16). Use 7/16 inch box end wrench and 7/16 inch socket with ratchet handle.
- Remove tags from two front tubes (16).



WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

36. INSTALL FRONT TOP LEAKOFF TUBE ON ENGINE.
    - Remove plugs and caps from tube (17) and fittings (18) and (19).
    - Connect tube (17) to fitting (18). Use 7/16 inch box and open end box wrench.
    - Connect tube (17) to fitting (19). Use 7/16 inch box and open end box wrench.
    - Remove tag from tube (17).



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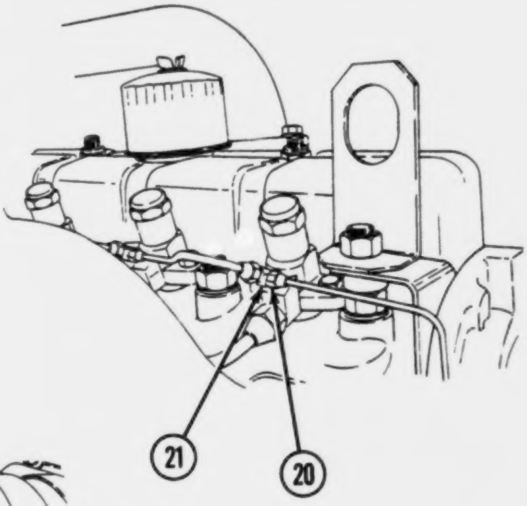
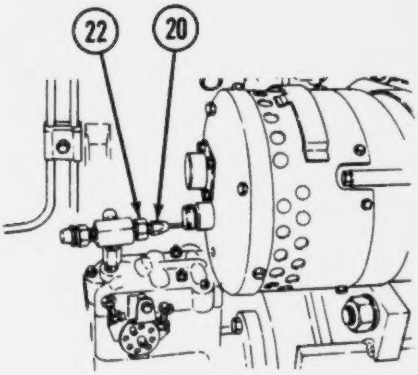
37. INSTALL FRONT LEAKOFF TUBE ON ENGINE.
    - Remove plug and caps from tube (20), adapter (21), and fitting (22).
    - Connect tube (20) to adapter (21). Use 7/16 inch box and open end box wrench.
    - Connect tube (20) to fitting (22). Use 7/16 inch box and open end box wrench.
    - Remove tag from tube (20).





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H. GEAR HOUSING COVER INSTALLATION — Continued

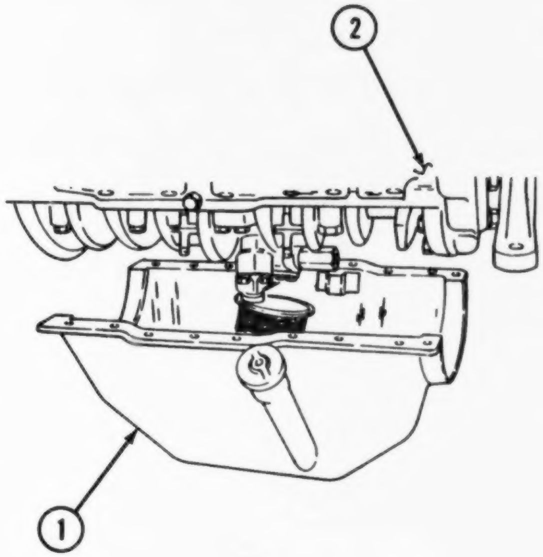
CAUTION

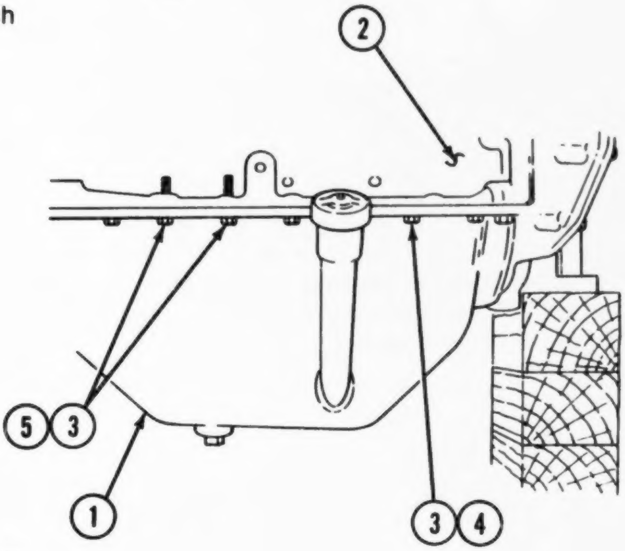
Oil pan flange can be damaged if oil pan falls. Support oil pan while removing from engine cylinder block.

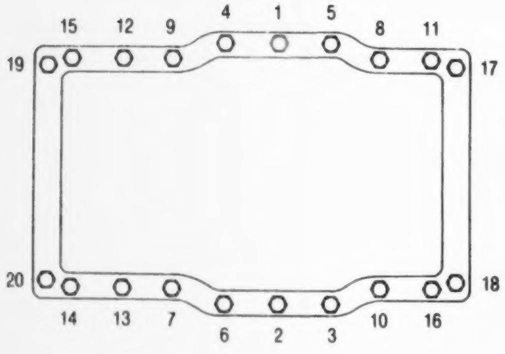
NOTE

Two long screws are for mounting engine control bracket assembly.

38. INSTALL OIL PAN ASSEMBLY ON ENGINE CYLINDER BLOCK.
    - Position oil pan (1) under cylinder block (2).
    - Install oil pan (1), 20 new lock washers (3), 18 screws (4), and two long screws (5) on cylinder block (2). Use helper.
    - Torque 18 screws (4) and two long screws (5) to 20 ft lb (2.8 mkg). (See following Oil Pan Torquing Sequence.) Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.



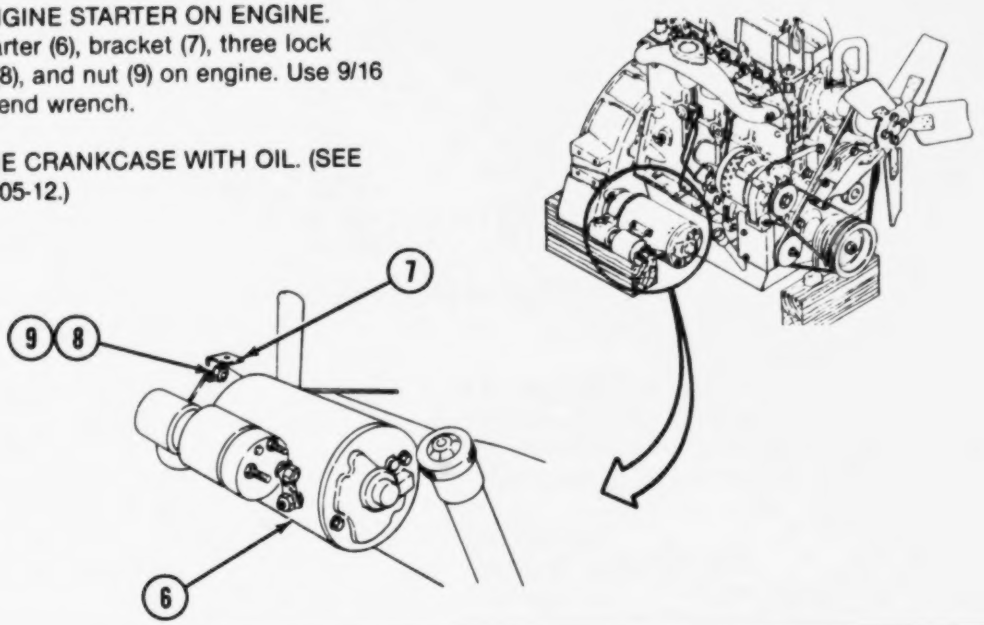




Oil Pan Torquing Sequence

39. INSTALL ENGINE STARTER ON ENGINE.
    - Install starter (6), bracket (7), three lock washers (8), and nut (9) on engine. Use 9/16 inch box end wrench.

40. FILL ENGINE CRANKCASE WITH OIL. (SEE LO 9-1095-205-12.)



END OF TASK

19-8 ROTARY OIL PUMP ASSEMBLY

DESCRIPTION

This task covers:
A. REMOVAL (p 19-149)
B. DISASSEMBLY (p 19-153)
C. REASSEMBLY (p 19-154)
D. INSTALLATION (p 19-154)

INITIAL SETUP

Tools and Special Tools:
- General mechanic's tool kit 5180-00-177-7033:
  - 9/16 inch socket
  - 5 inch extension
  - Ratchet handle
  - 9/16 inch box end wrench
  - Pocket knife
  - Chisel
  - Round nose pliers
  - Ball peen hammer
  - 1/8 inch drive pin punch
  - 1 inch open end wrench
  - Putty knife
- Cap and plug set 5340-00-450-5718
- Vernier caliper 5120-00-293-2913
- Arbor press 3444-00-449-7295
- Gear puller 5120-00-278-4293
- 3/4 inch drive hinged handle 5120-00-221-7959
- 3/4 inch drive 1 5/8 inch socket 5120-00-199-7765
- 1000 pound capacity hoist 3950-00-292-9879
- Measuring tape 5120-00-287-3335

Tools and Special Tools — Continued:
- Engine and transmission sling 4900-00-944-4915
- 1/2 inch drive torque wrench 5120-00-221-7950
- 3/8 inch drive torque wrench 5120-00-541-3001

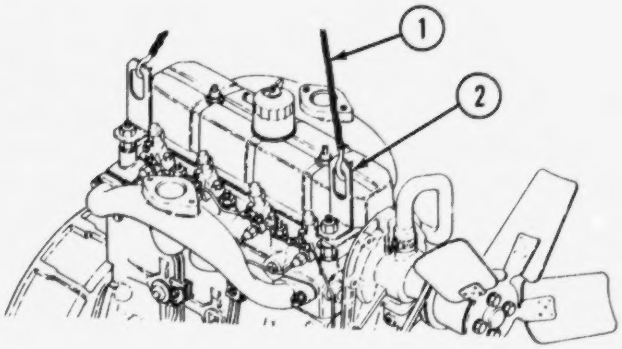
Materials/Parts:
- Gasket 5330-00-678-3821
- Lock washer (20) 5310-01-133-7241
- Lock washer (2) 5310-00-209-0920
- Lock washer 5310-00-917-0963
- Shim 5340-00-929-1745
- Seal (2) 5330-00-649-8437
- Adhesive sealant, Item 2, Appendix B
- Solvent, Item 28, Appendix B
- Rags, Item 22, Appendix B
- Lubricating oil, Item 16, Appendix B

Personnel Required:
- Mechanic
- Helper

References:
- LO 9-1095-205-12
- ROTARY OIL PUMP STRAINER, Page 15-513

A. REMOVAL

1. ATTACH ENGINE AND TRANSMISSION SLING (1) TO TWO LIFTING EYES (2) ON ENGINE.



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A. REMOVAL — Continued

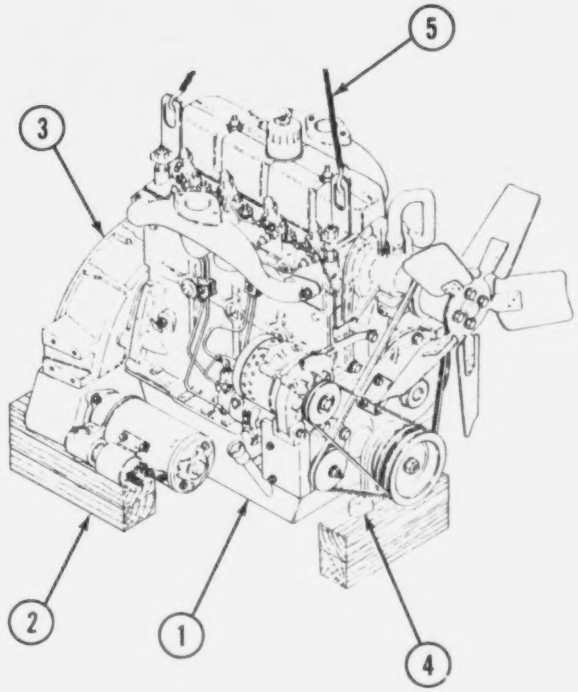
WARNING

Keep away from hanging loads and overhead equipment. Keep hands out of engine compartment when power unit is being removed or installed.

NOTE

Support diesel engine with enough wood blocks to allow a minimum of 7 in. (17.8 cm) of clearance under oil pan.

2. POSITION WOOD BLOCKS UNDER ENGINE.
   - Raise engine high enough to allow 7 in. (17.8 cm) of clearance under oil pan (1). Use hoist and measuring tape. Use helper.
   - Position wood blocks (2) under both sides of bell housing (3), and under front engine support (4).
   - Lower engine onto wood blocks (2). Use hoist. Use helper.
   - Release tension in engine and transmission sling (5).



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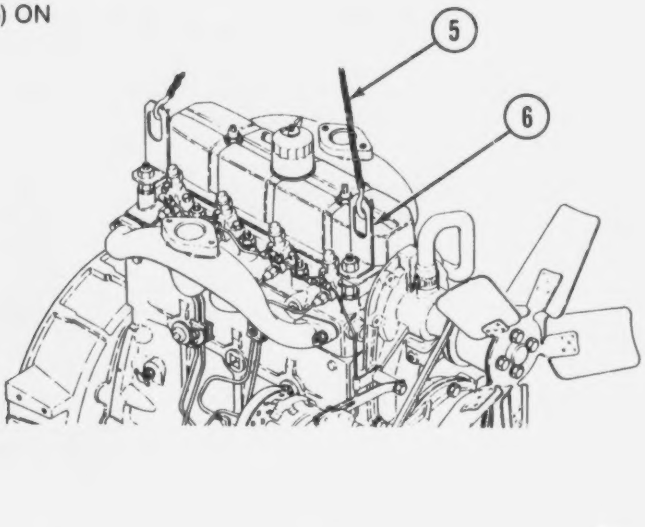
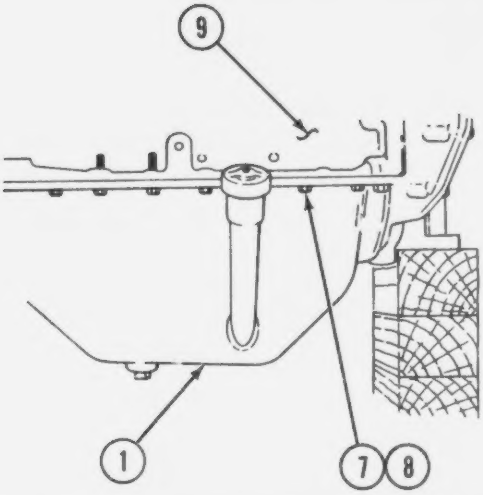
3. REMOVE ENGINE AND TRANSMISSION SLING (5) FROM TWO LIFTING EYES (6) ON ENGINE.



CAUTION

Oil pan flange can be damaged if oil pan falls. Support oil pan during oil pan removal.

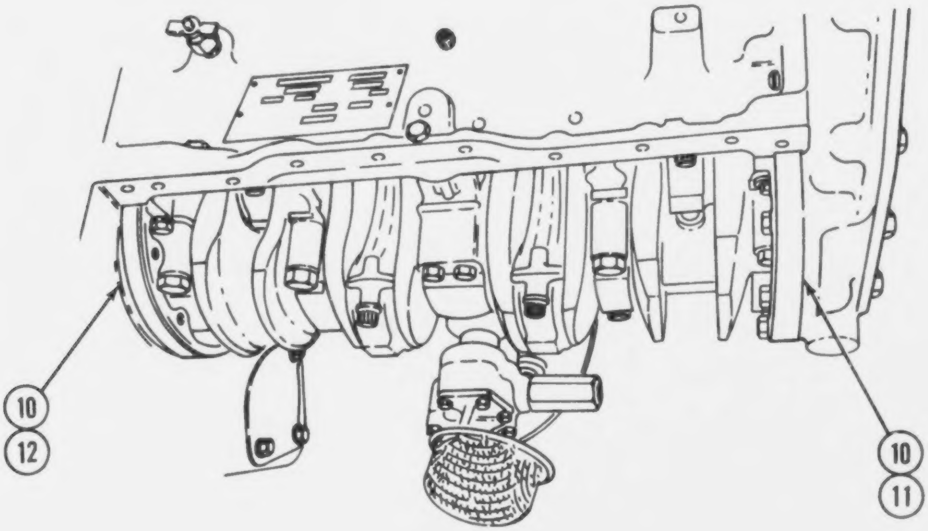
4. REMOVE OIL PAN ASSEMBLY FROM ENGINE CYLINDER BLOCK.
   - Remove 20 screws (7), lock washers (8), and oil pan (1) from cylinder block (9). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers. Use helper.



WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

5. REMOVE TWO OIL PAN ASSEMBLY END SEALS FROM FRONT AND REAR ADAPTERS.
   - Remove oil pan end seals (10) from front adapter (11) and rear adapter (12). Use putty knife, solvent, and rags. Discard seals.



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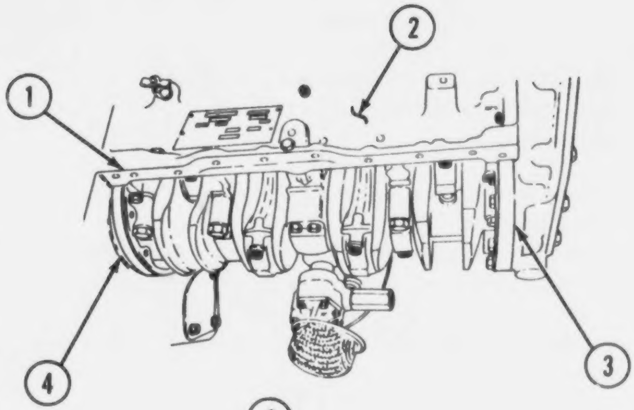
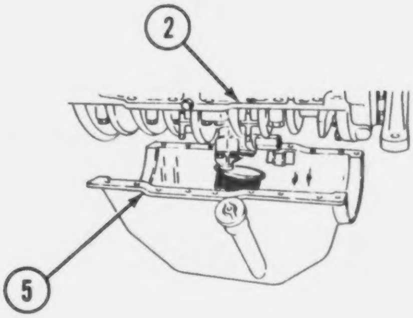
A. REMOVAL — Continued





WARNING

Cleaning solvent can explode and can burn. Read warning on front page of this manual.

6. REMOVE OIL PAN GASKET FROM ENGINE CYLINDER BLOCK.
   - Cut oil pan gasket (1) on each side of cylinder block (2) at front adapter (3) and rear adapter (4).
   - Remove oil pan gasket (1) from cylinder block (2). Use putty knife. Discard oil pan gasket.
   - Clean mating surfaces on oil pan (5) and cylinder block (2). Use putty knife, solvent, and rags.
7. REMOVE ROTARY OIL PUMP STRAINER FROM ROTARY OIL PUMP ASSEMBLY. (SEE ROTARY OIL PUMP STRAINER, PAGE 15-513.)

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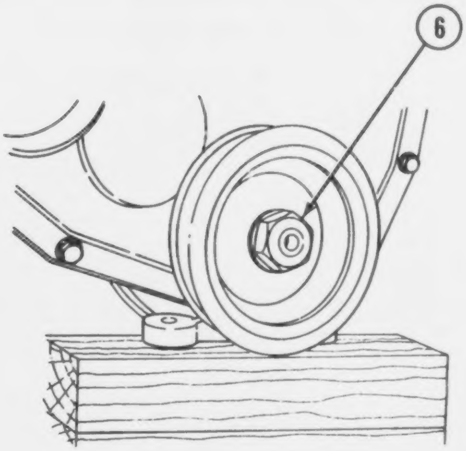
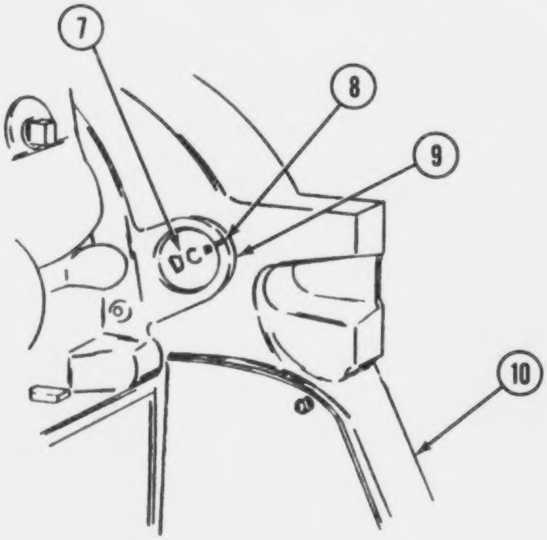
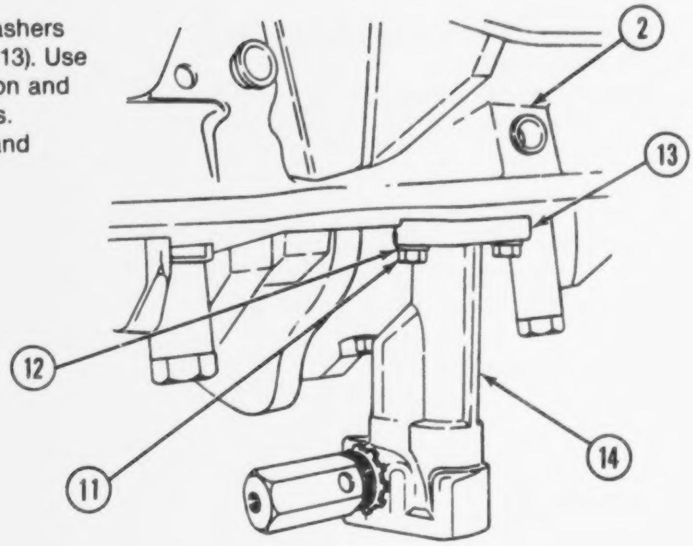
8. ALINE FLYWHEEL DC TIMING MARK.
   - Turn crankshaft nut (6) right until flywheel DC timing mark (7) alines with timing line (8) on timing hole (9) on bell housing (10). Use 1 5/8 inch socket with 3/4 inch drive hinged handle.



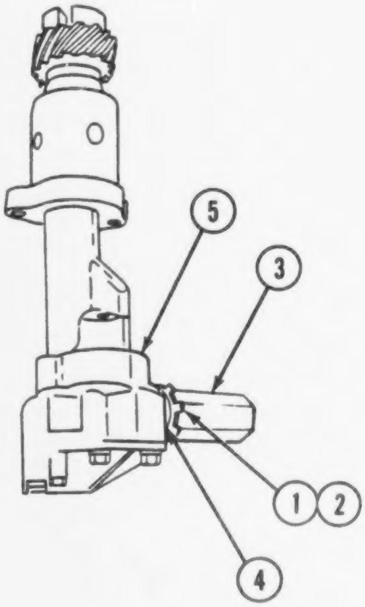


9. REMOVE ROTARY OIL PUMP ASSEMBLY FROM ENGINE CYLINDER BLOCK.
   - Remove two screws (11) and lock washers (12) from oil pump mounting flange (13). Use 9/16 inch socket with 5 inch extension and ratchet handle. Discard lock washers.
   - Turn oil pump assembly (14) to left and remove from cylinder block (2).



B. DISASSEMBLY

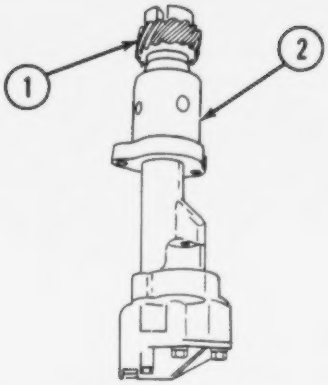
1. REMOVE OIL REGULATOR ASSEMBLY FROM ROTARY OIL PUMP ASSEMBLY.
   - Straighten tangs (1) on lock washer (2). Use ball peen hammer, chisel, and round nose pliers.
   - Remove oil regulator (3), lock washer (2), and shims (4) from oil pump (5). Discard lock washer.
   - Plug oil pump, and cap oil regulator.



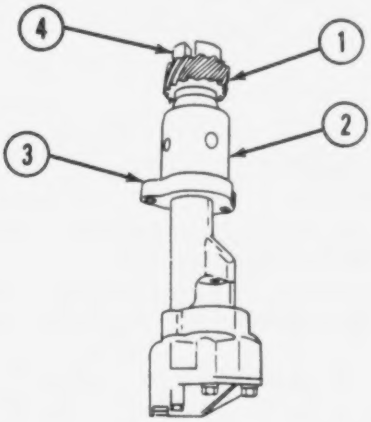
GO TO NEXT PAGE

B. DISASSEMBLY — Continued

2. REMOVE OIL PUMP GEAR FROM ROTARY OIL PUMP ASSEMBLY.
   - Remove pump gear (1) from oil pump (2). Use gear puller.



C. REASSEMBLY



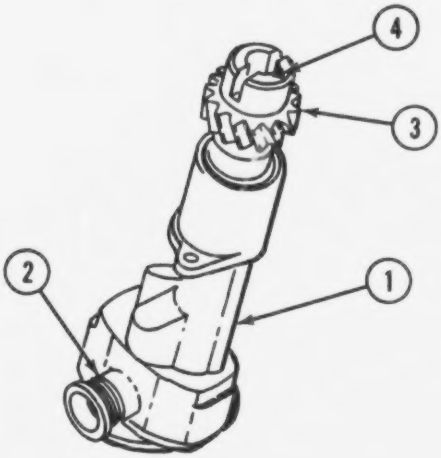
NOTE

If pump gear can be installed with less than 35 lb (15.8 kg) pressure, pump gear is faulty.

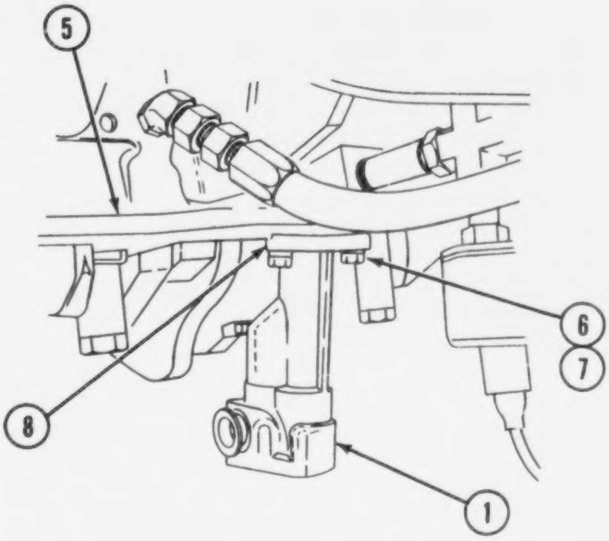
INSTALL OIL PUMP GEAR ON OIL PUMP ASSEMBLY.
- Install pump gear (1) on oil pump (2) so distance from flange mounting surface (3) to gear end (4) is 4.21 — 4.23 in. (10.47 — 10.97 cm). Use arbor press and vernier caliper.

D. INSTALLATION

1. POSITION ROTARY OIL PUMP ASSEMBLY FOR INSTALLATION.
   - Turn oil pump (1) until regulator opening (2) points to front of engine.
   - Turn pump gear (3) until arrow (4) on top of pump gear points to left side of engine.



2. INSTALL ROTARY OIL PUMP ASSEMBLY ON ENGINE CYLINDER BLOCK.
   - Position oil pump (1) on cylinder block (5) with mounting holes alined.
   - Install two new lock washers (6) and screws (7) on oil pump mounting flange (8).
   - Torque two screws (7) to 25 ft lb (3.7 mkg). Use 9/16 inch socket with 5 inch extension and 1/2 inch drive torque wrench.



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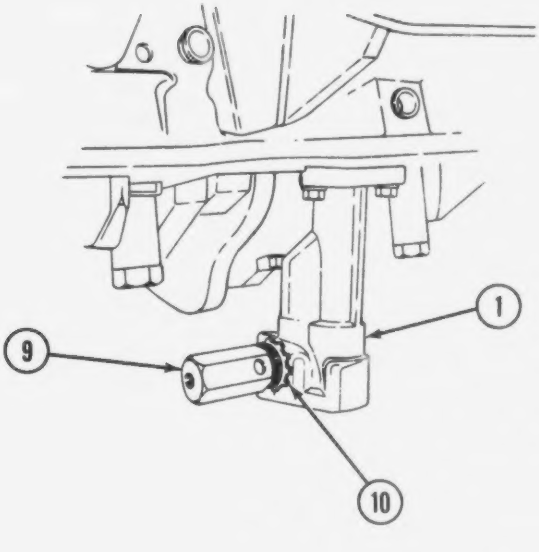
3. INSTALL OIL REGULATOR ASSEMBLY ON ROTARY OIL PUMP ASSEMBLY FOR ALINEMENT CHECK.
   - Remove plug and cap from oil pump (1) and oil regulator (9).
   - Install new lock washer (10) and oil regulator (9) on oil pump (1). Use 1 inch open end wrench.



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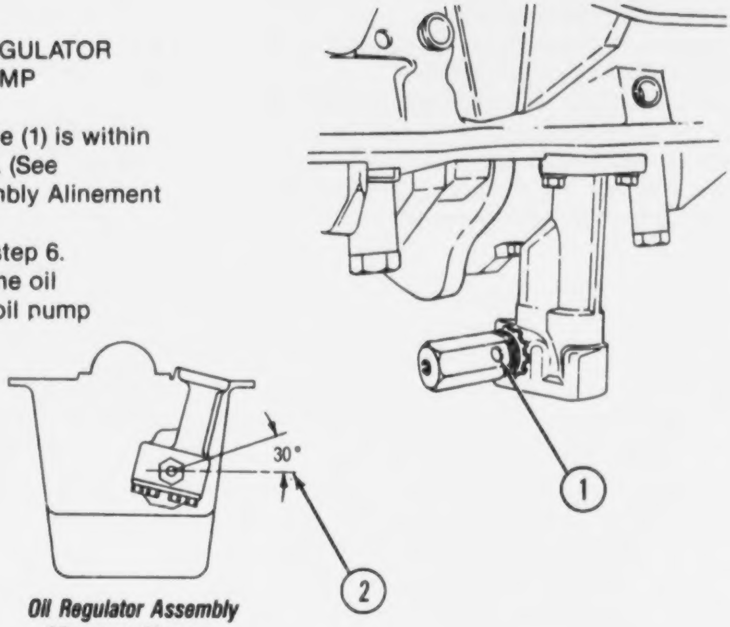
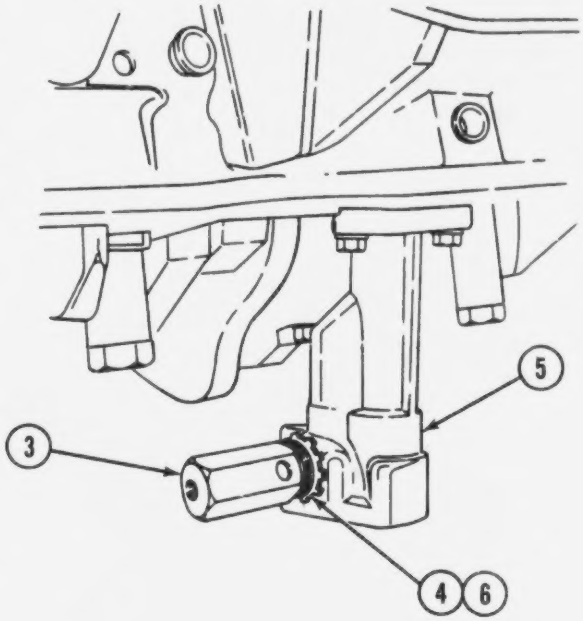
D. INSTALLATION — Continued

4. CHECK ALINEMENT OF OIL REGULATOR ASSEMBLY ON ROTARY OIL PUMP ASSEMBLY.
   - Check that regulator relief hole (1) is within 30° above horizontal plane (2). (See following Oil Regulator Assembly Alinement Diagram.)
   - If alinement is correct, go to step 6.
   - If alinement is not correct, aline oil regulator assembly on rotary oil pump assembly. (See next step).



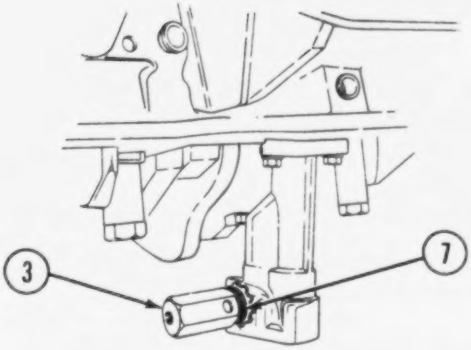
Oil Regulator Assembly Alinement Diagram

5. ALINE OIL REGULATOR ASSEMBLY ON ROTARY OIL PUMP ASSEMBLY.
   - Remove oil regulator (3) and lock washer (4) from oil pump (5). Use 1 inch open end wrench.
   - Install lock washer (4) on oil regulator (3).
   - Install shims (6) on oil regulator (3) as required to correct alinement checked in step 4. New shim may be required.
   - Install oil regulator (3) with shims (6) and lock washer (4) on oil pump (5). Use 1 inch open end wrench.



6. SECURE OIL REGULATOR ASSEMBLY ON ROTARY OIL PUMP ASSEMBLY.
   - Bend lock washer tangs (7) over oil regulator (3). Use round nose pliers, ball peen hammer, and 1/8 inch drive pin punch.

7. INSTALL ROTARY OIL PUMP STRAINER ON ROTARY OIL PUMP ASSEMBLY. (SEE ROTARY OIL PUMP STRAINER, PAGE 15-513.)



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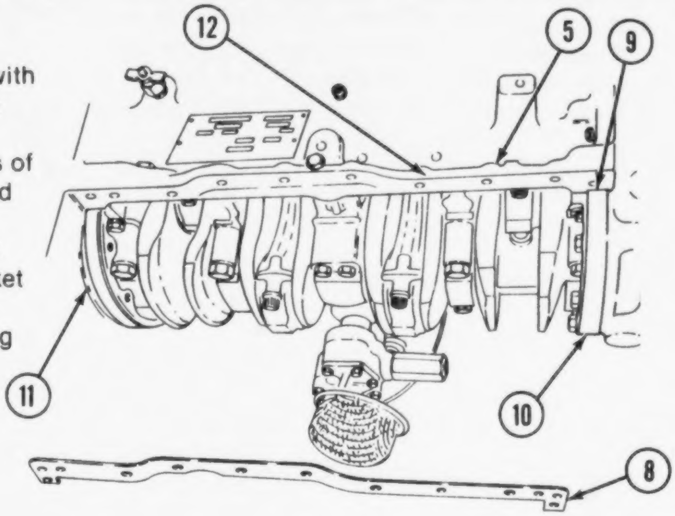
8. INSTALL NEW GASKET ON ENGINE CYLINDER BLOCK.
   - Aline mounting holes in new gasket (8) with mounting holes in cylinder block (5). Use helper.
   - Cut ends of gasket (8) to fit against ends of old gasket (9) under front adapter (10) and rear adapter (11). Use pocket knife.
   - Apply adhesive sealant to cylinder block mating surface (12) and ends of old gasket (9).
   - Install gasket (8) on cylinder block mating surface (12) with ends of gasket (8) contacting ends of old gasket (9).



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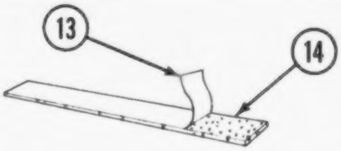
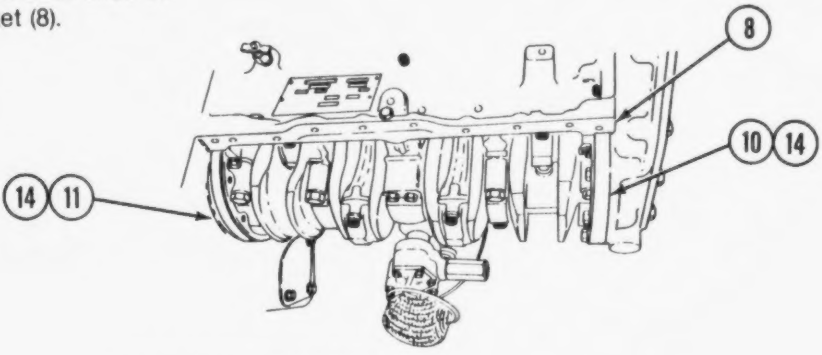
9. INSTALL TWO NEW OIL PAN ASSEMBLY END SEALS ON FRONT AND REAR ADAPTERS.
   - Remove protective cover (13) from new seals (14). Discard protective covering.
   - Install seals (14) on front adapter (10) and rear adapter (11). Make sure both ends of seals contact oil pan gasket (8).





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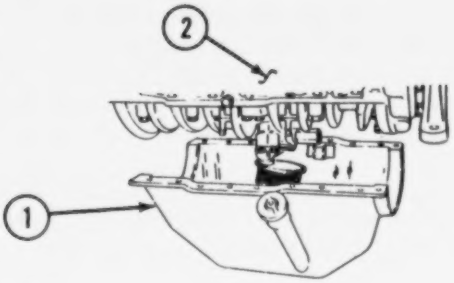
D. INSTALLATION — Continued

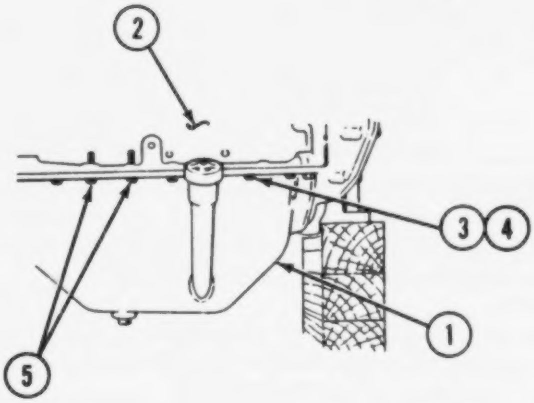
CAUTION

Oil pan flange can be damaged if oil pan falls. Support oil pan during oil pan removal.

NOTE

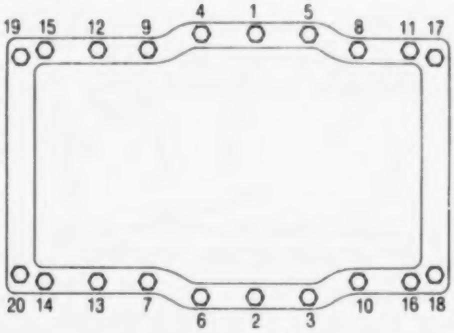
Two long screws are for mounting engine control bracket assembly.





10. INSTALL OIL PAN ASSEMBLY ON ENGINE CYLINDER BLOCK.
    - Position oil pan (1) under cylinder block (2).
    - Install oil pan (1), 20 new lock washers (3), 18 screws (4), and two long screws (5) on cylinder block (2). Use helper.
    - Torque 18 screws (4) and two long screws (5) to 20 ft lb (2.8 mkg). (See following Oil Pan Torquing Sequence.) Use 9/16 inch socket with 5 inch extension and 3/8 inch drive torque wrench.

11. FILL ENGINE CRANKCASE WITH OIL. (SEE LO 9-1095-205-12.)



Oil Pan Torquing Sequence

END OF TASK

19-9 FUEL INJECTION PUMP

DESCRIPTION

This task covers:
A. DISASSEMBLY (p 19-160)
B. CLEANING (p 19-177)
C. REASSEMBLY (p 19-177)

INITIAL SETUP

Tools and Special Tools:

- General mechanic's tool kit 5180-00-177-7033:
  - Paint brush
  - 5/64 inch hex key
  - 5/32 inch hex key
  - 1/4 inch hex key
  - Thickness gage
  - Diagonal cutting pliers
  - Slip joint pliers
  - 1/4 inch flat tip screwdriver (2)
  - 5/16 inch flat tip screwdriver
  - 7/16 inch socket
  - 1/2 inch socket
  - 3/4 inch socket
  - 1 1/8 inch socket
  - Ratchet handle
  - 5/16 inch open end wrench (2)
  - 9/16 inch open end wrench
  - 7/16 inch box end wrench
  - 3/4 inch box end wrench
- 1/4 inch drive socket wrench set 5120-00-081-2305:
  - 1/4 inch socket
  - 5/16 inch socket
  - 11/32 inch socket
  - Ratchet handle
- 3/8 inch drive 1/4 inch male socket wrench adapter 5120-00-277-8095
- 3/8 inch drive torque wrench 0 — 150 inch pound 5120-00-230-6380
- 1/2 inch drive torque wrench 0 — 300 inch pound 5120-00-247-2563
- 1/2 inch drive torque wrench 0 — 175 foot pound 5120-00-640-6364
- 1/4 inch drive 7/16 inch deep socket 5120-00-189-7293
- 1/4 inch drive 5/32 inch hex screwdriver bit 5120-00-640-6732

Tools and Special Tools — Continued:

- 1/4 inch drive 5/64 inch hex screwdriver bit 5120-00-289-9453
- 1/4 inch box end wrench 5120-00-288-9997
- Wash pan 4910-00-387-9592
- Air compressor 4310-00-542-4566
- Air blow gun 4940-00-333-5541
- 3/8 inch flat tip offset screwdriver 5120-00-240-5232
- Retaining ring pliers 5120-00-293-0045
- Jeweler's screwdriver set 5120-00-288-8739
- 3/8 inch drive 5/16 inch flat tip screwdriver bit 5120-00-935-7352
- 3/8 inch drive 3/8 inch flat tip screwdriver bit 5120-00-243-7338
- 0 — 1 inch outside micrometer caliper 5120-00-540-2973
- 1 — 2 inch outside micrometer caliper 5120-00-540-2933
- Multimeter 6655-00-999-6282
- Machinist's vise 5120-00-180-0681
- Soft bore brush
- Goggles 4240-00-269-7912
- Roosa master special tools:
  - Electric shutoff adjustment tool No. 14067
  - Linkage hook wrench No. 13379
  - Linkage hook adjustment gage No. 13389
  - Holding fixture No. 13363

Materials/Parts:

- Preformed packing (2) 5330-00-757-1680
- Lock washer (8) 5310-00-796-8638
- Gasket 5330-00-640-9399
- Seal (3) 5330-00-641-8282
- Seal 5330-00-061-8538
- Preformed packing 5330-01-014-6985
- Preformed packing 5330-00-974-6643

GO TO NEXT PAGE

INITIAL SETUP — Continued

Materials/Parts — Continued:

Preformed packing 5330-00-936-4587
Seal (2) 5330-00-641-8283
Preformed packing (2) 5330-00-641-8286
Seal 5330-00-877-4960
Seal 5330-00-853-2776
Seal 2910-00-901-0749
Preformed packing 5330-00-171-5641
Element seal 2910-00-898-4927
Safety wire, Item 23, Appendix B

Materials/Parts — Continued:

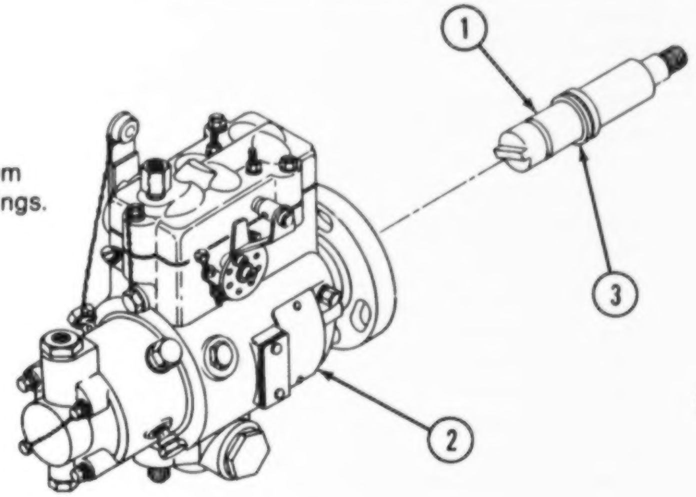
Preformed packing 5330-00-641-8291
Solvent, Item 28, Appendix B
Diesel fuel, Item 29, Appendix B
Grease, Item 11, Appendix B

Reference:

FUEL INJECTION PUMP BENCH TEST, Page 15-517

A. DISASSEMBLY

1. REMOVE DRIVE SHAFT FROM FUEL INJECTION PUMP.
   - Remove drive shaft (1) from pump (2).
   - Remove two preformed packings (3) from drive shaft (1). Discard preformed packings.



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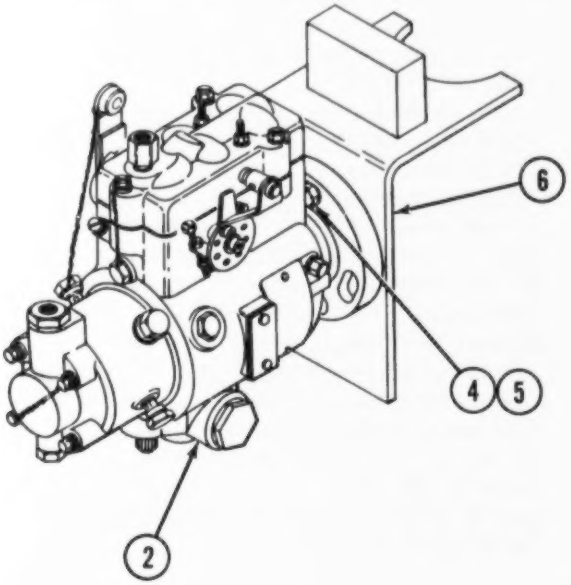
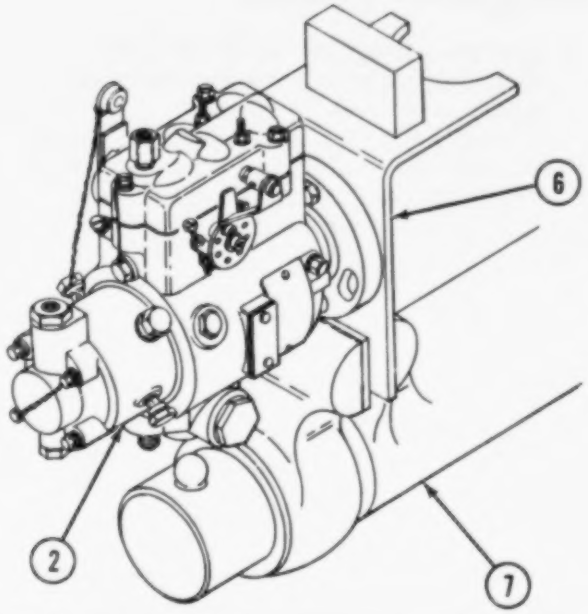
2. INSTALL FUEL INJECTION PUMP ON HOLDING FIXTURE.
   - Install pump (2), two washers (4), and nuts (5) on holding fixture (6). Use 9/16 inch open end wrench.



CAUTION

Fuel injection pump can be damaged if placed directly in vise. Always use holding fixture to hold pump in vise.

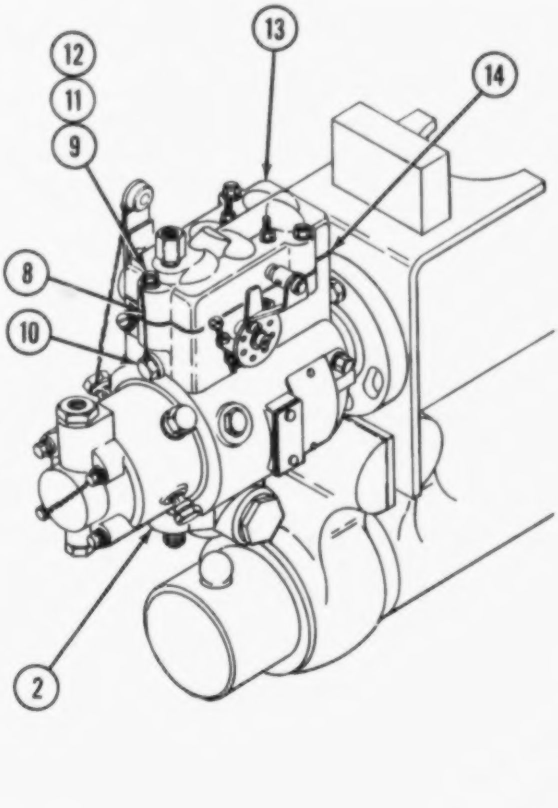
3. PLACE HOLDING FIXTURE (6) WITH FUEL INJECTION PUMP (2) IN VISE (7).



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

4. REMOVE GOVERNOR CONTROL COVER FROM FUEL INJECTION PUMP.
   - Cut and remove safety wire (8) from screw (9) and guide stud (10). Use diagonal cutting pliers. Discard safety wire.
   - Remove three screws (9), washers (11), lock washers (12), cover (13), and gasket (14) from pump (2). Use 5/16 inch socket with 1/4 inch drive ratchet handle. Discard lock washers and gasket.



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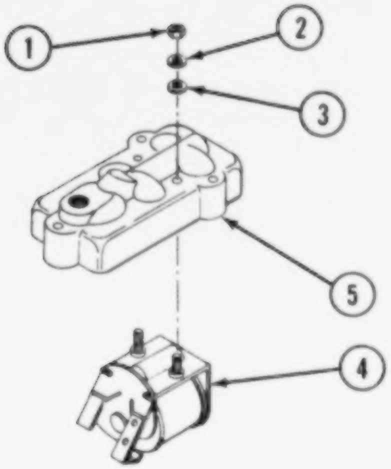
A. DISASSEMBLY — Continued

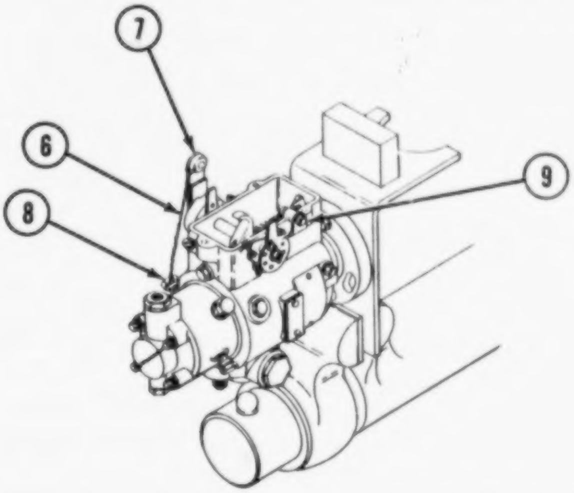
5. REMOVE SOLENOID FRAME AND ARM ASSEMBLY FROM GOVERNOR CONTROL COVER.
   - Remove two nuts (1), washers (2), insulating washers (3), and solenoid assembly (4) from cover (5). Use 11/32 inch socket with 1/4 inch drive ratchet handle.



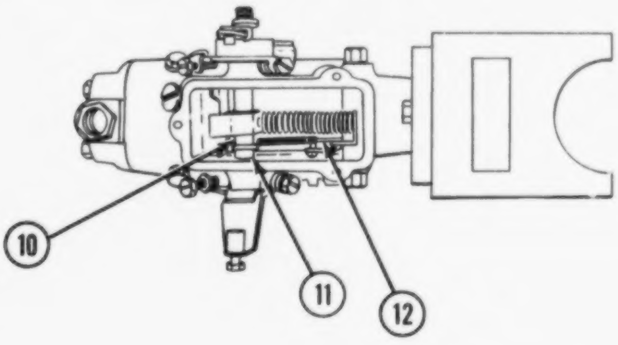
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

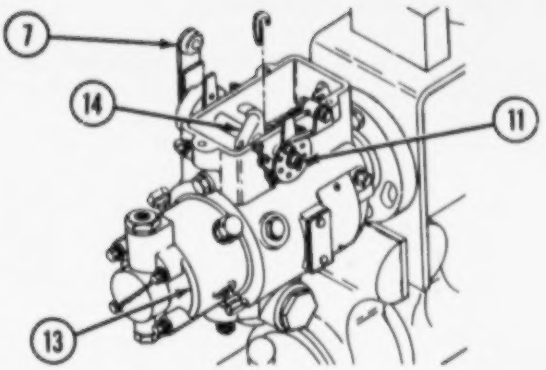
6. REMOVE FUEL SHUTOFF SHAFT AND THROTTLE SHAFT ASSEMBLIES FROM FUEL INJECTION PUMP.
   - Cut and remove safety wire (6) from throttle shaft assembly (7) and screw (8). Use diagonal cutting pliers. Discard safety wire.
   - Turn fuel shutoff arm assembly (9) all the way left.



- Remove shutoff cam (10) from shutoff shaft assembly (11) and governor linkage hook assembly (12). Use 1/4 inch flat tip screwdriver.



- Remove shutoff shaft assembly (11) from pump (13).
- Remove throttle shaft lever (14) from throttle shaft assembly (7).
- Remove shaft assembly (7) from pump (13).



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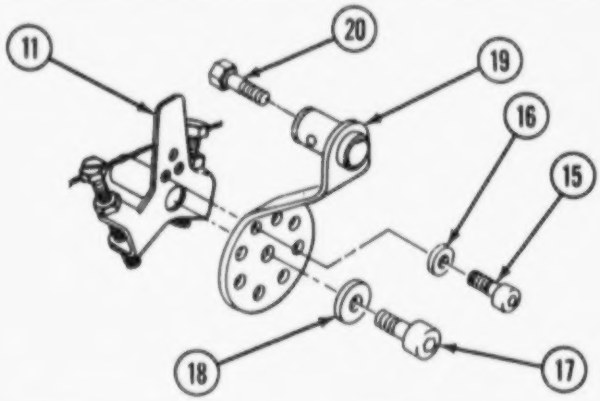
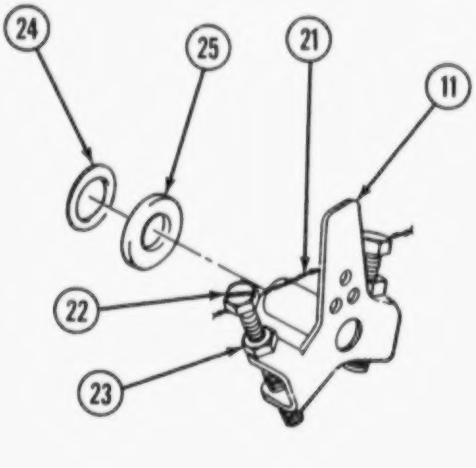
7. REMOVE FUEL SHUTOFF ARM ASSEMBLY FROM FUEL SHUTOFF SHAFT ASSEMBLY.
    - Remove adjusting screw (15) and washer (16) from shutoff shaft assembly (11). Use 5/64 inch hex key.
    - Remove screw (17), lock washer (18), and arm assembly (19) from shutoff shaft assembly (11). Use 5/32 inch hex key. Discard lock washer.
    - Remove stop screw (20) from arm assembly (19). Use 1/4 inch box end wrench.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

8. DISASSEMBLE FUEL SHUTOFF SHAFT ASSEMBLY.
    - Cut and remove safety wire (21) from two adjusting screws (22). Use diagonal cutting pliers. Discard safety wire.
    - Loosen two adjusting nuts (23). Use 5/16 inch open end wrench.
    - Remove two adjusting screws (22) and adjusting nuts (23) from shutoff shaft assembly (11). Use 5/16 inch flat tip screwdriver.
    - Remove two adjusting nuts (23) from adjusting screws (22). Use 5/16 inch open end wrench and 5/16 inch flat tip screwdriver.
    - Remove seal (24) and washer (25) from shutoff shaft assembly (11). Discard seal.



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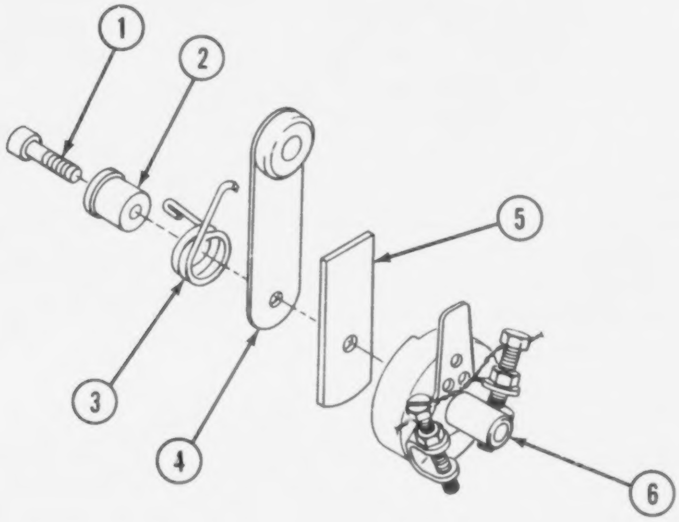
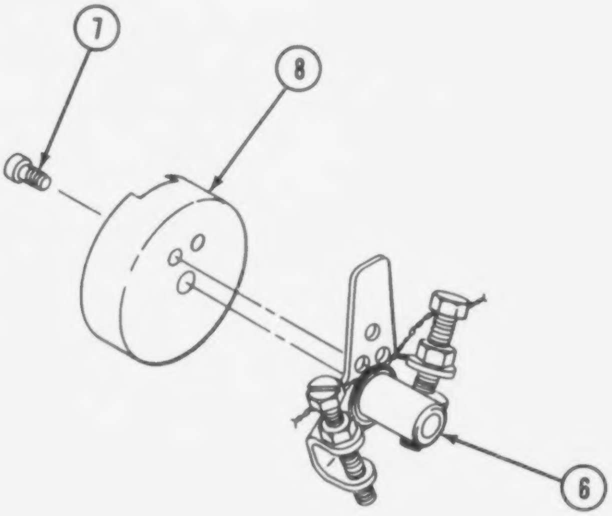
A. DISASSEMBLY — Continued

9. REMOVE THROTTLE LEVER ASSEMBLY AND SPACER FROM THROTTLE SHAFT ASSEMBLY.
   - Remove screw (1), spring retainer (2), throttle lever spring (3), throttle lever (4), and adjusting arm (5) from throttle shaft assembly (6). Use 5/32 inch hex key.



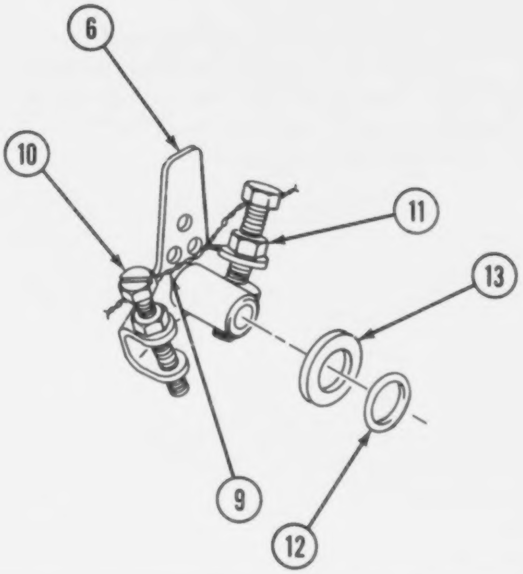
   - Remove screw (7) and spacer (8) from throttle shaft assembly (6). Use 5/64 inch hex key.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

10. DISASSEMBLE THROTTLE SHAFT ASSEMBLY.
    - Cut and remove safety wire (9) from two adjusting screws (10). Use diagonal cutting pliers. Discard safety wire.
    - Loosen two adjusting nuts (11). Use 5/16 inch open end wrench.
    - Remove two adjusting screws (10) and adjusting nuts (11) from throttle shaft assembly (6). Use 5/16 inch flat tip screwdriver.
    - Remove two adjusting nuts (11) from adjusting screws (10). Use 5/16 inch open end wrench and 5/16 inch flat tip screwdriver.
    - Remove seal (12) and washer (13) from throttle shaft assembly (6). Discard seal.



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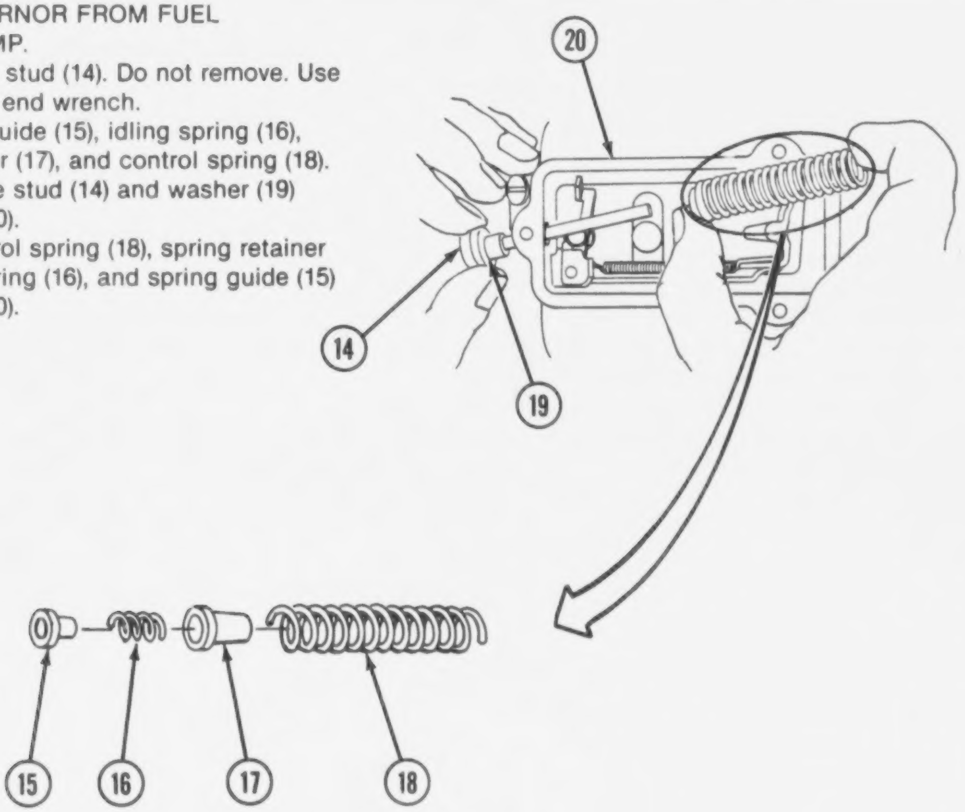
11. REMOVE GOVERNOR FROM FUEL INJECTION PUMP.
    - Loosen guide stud (14). Do not remove. Use 7/16 inch box end wrench.
    - Hold spring guide (15), idling spring (16), spring retainer (17), and control spring (18).
    - Remove guide stud (14) and washer (19) from pump (20).
    - Remove control spring (18), spring retainer (17), idling spring (16), and spring guide (15) from pump (20).



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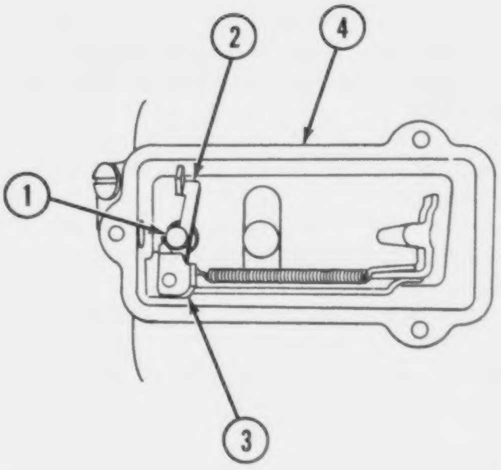
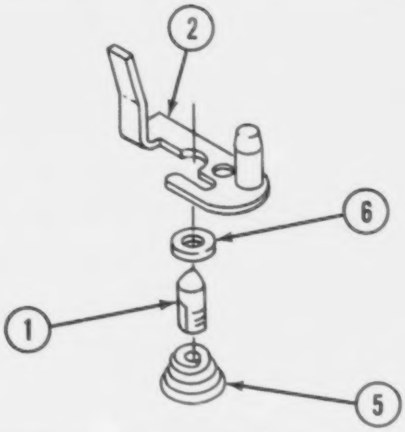
A. DISASSEMBLY — Continued

12. REMOVE METERING VALVE AND METERING VALVE ARM ASSEMBLY FROM ASSEMBLY HOUSING.
    - Push down metering valve (1) and arm assembly (2), and raise governor linkage hook assembly (3) to clear arm assembly.
    - Remove metering valve (1) and arm assembly (2) from pump (4).



- Remove valve spring (5), metering valve (1), and metering valve shim (6) from arm assembly (2).



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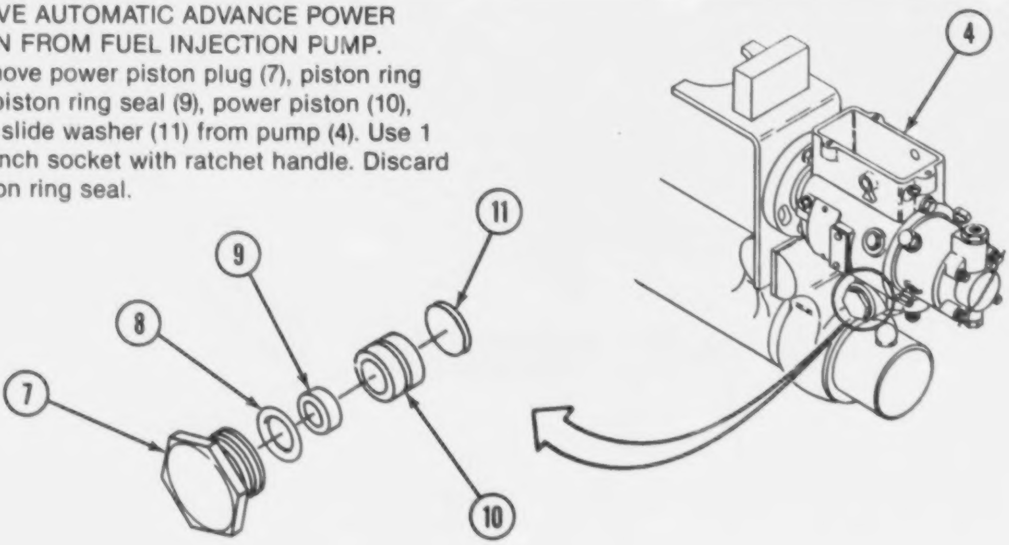
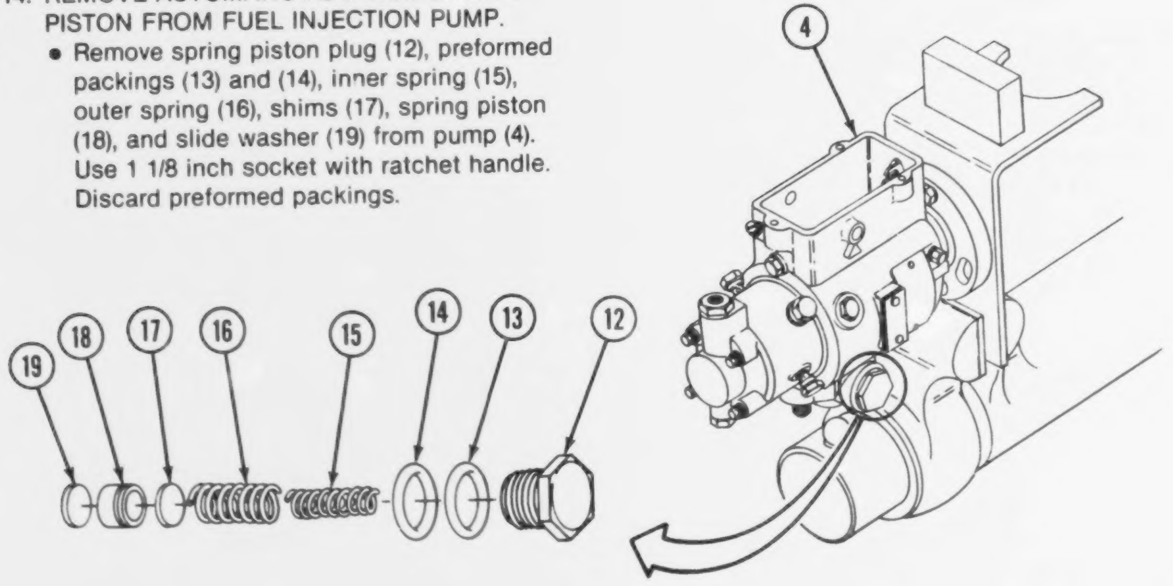
13. REMOVE AUTOMATIC ADVANCE POWER PISTON FROM FUEL INJECTION PUMP.
    - Remove power piston plug (7), piston ring (8), piston ring seal (9), power piston (10), and slide washer (11) from pump (4). Use 1 1/8 inch socket with ratchet handle. Discard piston ring seal.



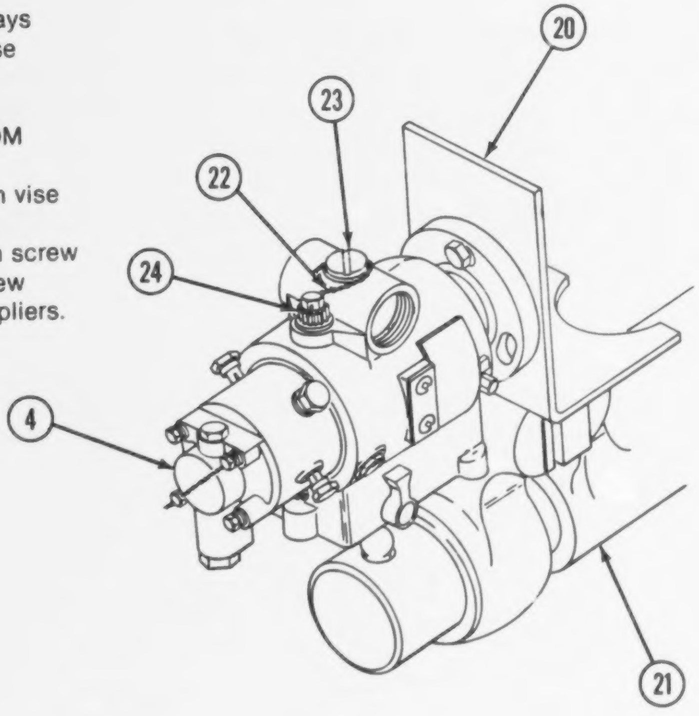
14. REMOVE AUTOMATIC ADVANCE SPRING PISTON FROM FUEL INJECTION PUMP.
    - Remove spring piston plug (12), preformed packings (13) and (14), inner spring (15), outer spring (16), shims (17), spring piston (18), and slide washer (19) from pump (4). Use 1 1/8 inch socket with ratchet handle. Discard preformed packings.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

15. REMOVE CAM ADVANCE SCREW FROM FUEL INJECTION PUMP.
    - Turn fixture (20) with pump (4) over in vise (21).
    - Cut and remove safety wire (22) from screw hold plug (23) and head locating screw assembly (24). Use diagonal cutting pliers. Discard safety wire.



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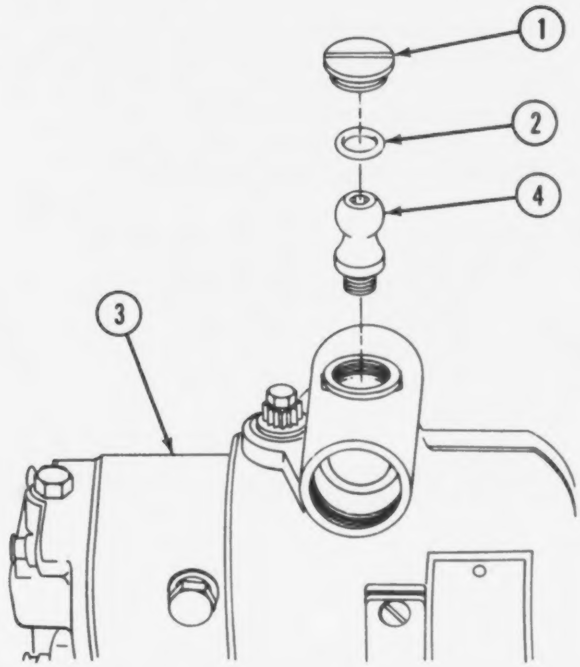
A. DISASSEMBLY — Continued

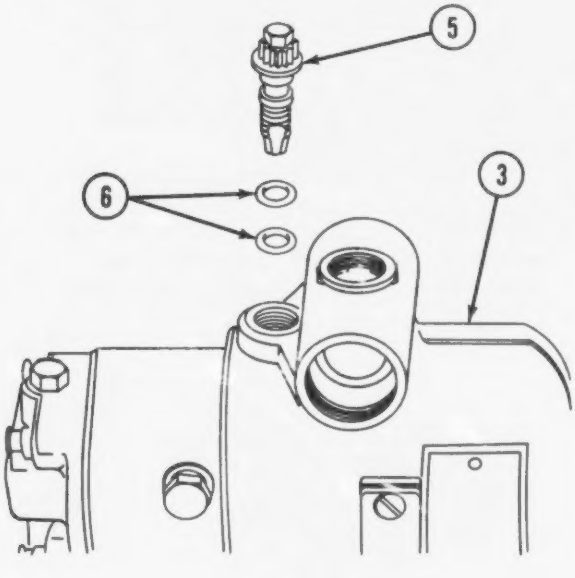
- Remove screw hole plug (1) and preformed packing (2) from pump (3). Use 3/8 inch flat tip offset screwdriver. Discard preformed packing.
- Remove advance screw (4) from pump (3). Use 1/4 inch hex key.



NOTE

Do not disassemble head locating screw assembly.

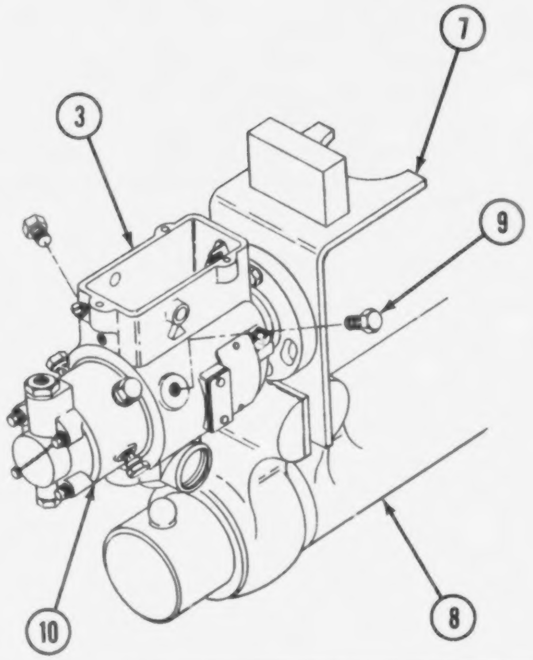
16. REMOVE HEAD LOCATING SCREW ASSEMBLY FROM FUEL INJECTION PUMP.
    - Remove screw assembly (5) and screw seals (6) from pump (3). Use 7/16 inch deep socket with 1/4 inch drive ratchet handle. Discard seals.



CAUTION

Governor weights are loose and can be damaged if they fall from head and rotor assembly. Keep one hand at front of head and rotor assembly during removal, to prevent governor weights from falling.

17. REMOVE HEAD AND ROTOR ASSEMBLY FROM FUEL INJECTION PUMP.
    - Turn holding fixture (7) with pump (3) over in vise (8).
    - Remove two head locking screws (9) from pump (3). Use 1/2 inch socket with ratchet handle.
    - Remove head and rotor assembly (10) from pump (3).



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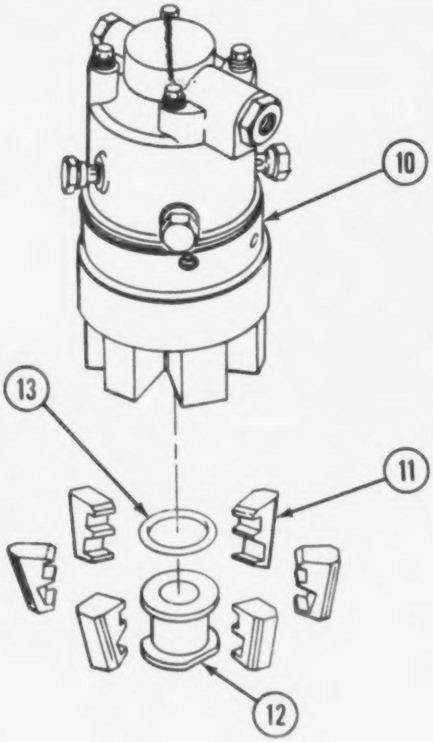
18. REMOVE SIX GOVERNOR WEIGHTS FROM HEAD AND ROTOR ASSEMBLY.
    - Tip head and rotor assembly (10) allowing six governor weights (11), thrust sleeve (12), and sleeve washer (13) to fall into hand.



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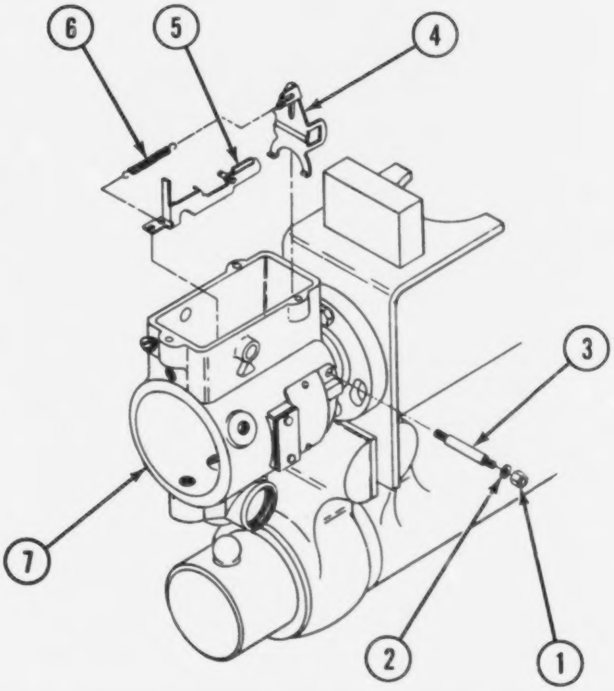
A. DISASSEMBLY — Continued

19. REMOVE GOVERNOR ARM AND GOVERNOR LINKAGE HOOK ASSEMBLY FROM FUEL INJECTION PUMP.
    - Remove two shaft retaining nuts (1) and seals (2) from pivot arm shaft (3). Use two 5/16 inch open end wrenches. Discard seals.
    - Remove pivot arm shaft (3) and governor arm (4), with hook assembly (5) and linkage spring (6), from pump (7).
    - Remove linkage spring (6) and hook assembly (5) from governor arm (4).



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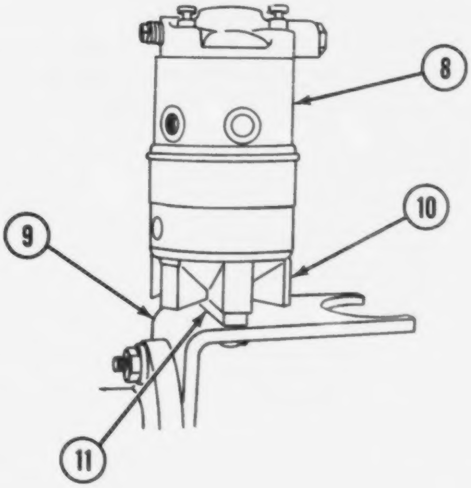
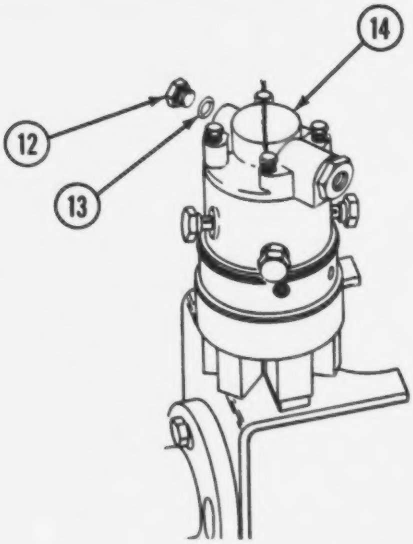
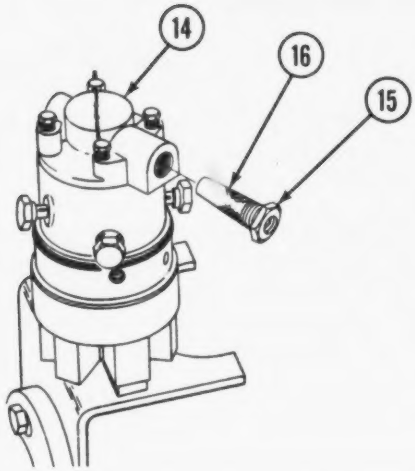
20. REMOVE END PLATE PLUG FROM END PLATE.
    - Place head and rotor assembly (8) on holding fixture (9) with governor weight retainer (10) engaged in holding fixture bar (11).
    - Remove end plate plug (12) and seal (13) from end plate (14). Use 7/16 inch socket with ratchet handle. Discard seal.





21. REMOVE PRESSURE REGULATING SLEEVE ASSEMBLY FROM END PLATE.
    - Remove sleeve assembly (15) from end plate (14). Use 3/4 inch socket with ratchet handle.
    - Remove filter element (16) from sleeve assembly (15).



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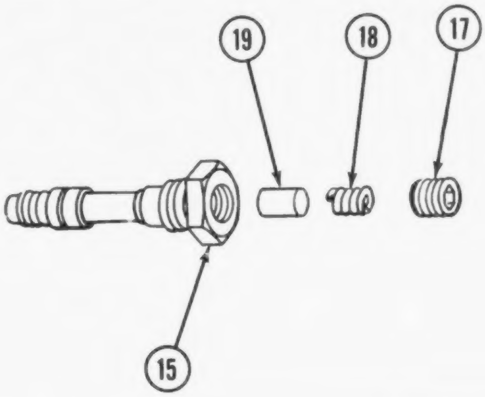
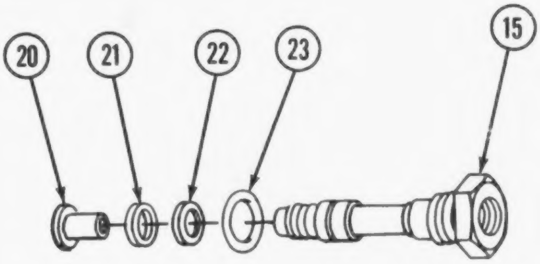
22. DISASSEMBLE PRESSURE REGULATING SLEEVE ASSEMBLY.
    - Remove adjusting plug (17), regulating spring (18), and regulating piston (19) from sleeve assembly (15). Use 3/4 inch box end wrench and 5/32 inch hex key.



- Remove piston seal (20), preformed packing (21), element seal (22), and sleeve ring seal (23) from sleeve assembly (15). Discard piston seal, element seal, and preformed packing.



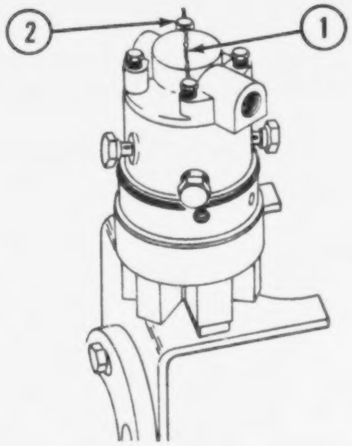
GO TO NEXT PAGE

A. DISASSEMBLY — Continued

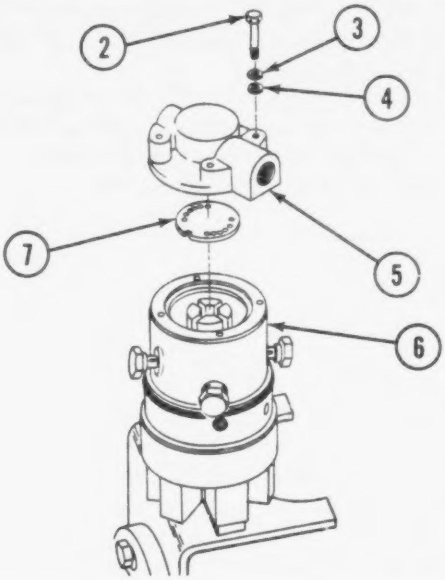
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

23. REMOVE END PLATE AND THRUST PLATE FROM HEAD AND ROTOR ASSEMBLY.
    - Cut and remove safety wire (1) from two screws (2). Use diagonal cutting pliers. Discard safety wire.



- Remove four screws (2), lock washers (3), washers (4), and end plate (5) from head and rotor assemby (6). Use 5/16 inch socket with 1/4 inch drive ratchet handle. Discard lock washers.
- Remove thrust plate (7) from end plate (5).



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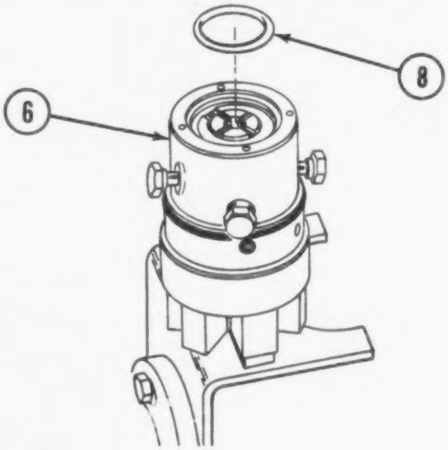
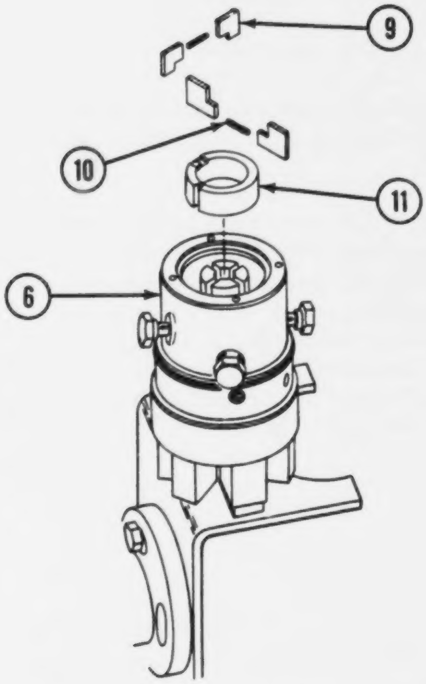
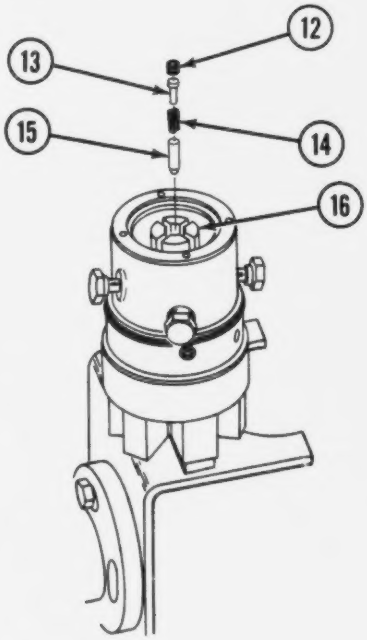
24. REMOVE TRANSFER PUMP SEAL FROM HEAD AND ROTOR ASSEMBLY.
    - Remove pump seal (8) from head and rotor assembly (6). Discard seal.



25. REMOVE FOUR PUMP BLADES FROM HEAD AND ROTOR ASSEMBLY.
    - Remove four blades (9), with two springs (10) and transfer pump liner (11), from head and rotor assembly (6).
    - Remove four blades (9), with two springs (10), from transfer liner (11).
    - Remove two springs (10) from four blades (9).



26. REMOVE DELIVERY VALVE FROM ROTOR SHAFT.
    - Remove delivery valve screw (12), valve stop (13), valve spring (14), and valve (15) from shaft (16). Use 5/32 inch hex key.



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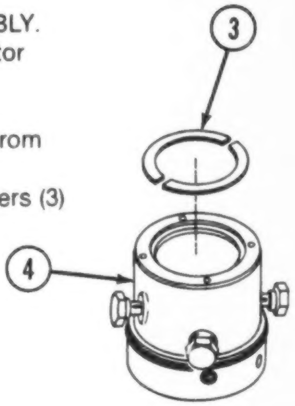
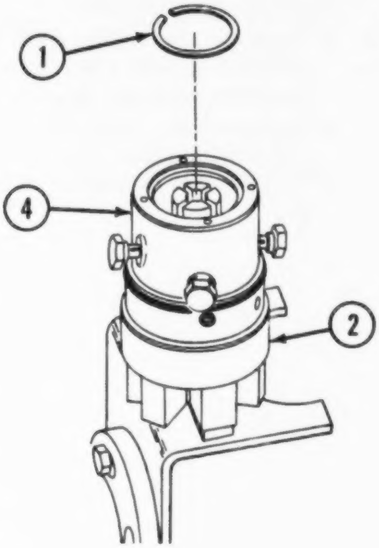
A. DISASSEMBLY — Continued

CAUTION

Highly polished surface of rotor shaft can be easily damaged. Do not touch polished surface.

27. REMOVE HEAD FROM ROTOR ASSEMBLY.
    - Remove rotor retainer ring (1) from rotor assembly (2). Use 1/4 inch flat tip screwdriver.
    - Move two rotor retainers (3) outward from rotor assembly (2).
    - Remove head (4) with two rotor retainers (3) from rotor assembly (2).





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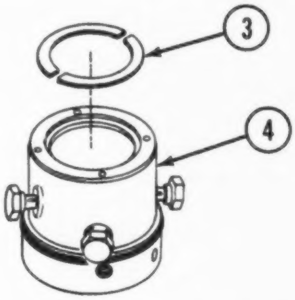
28. REMOVE TWO ROTOR RETAINERS (3) FROM HEAD (4).



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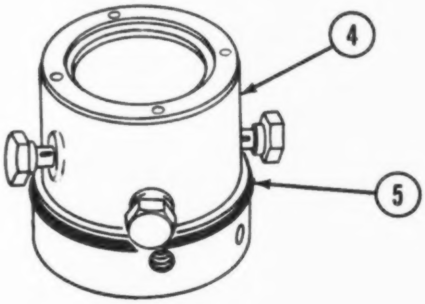
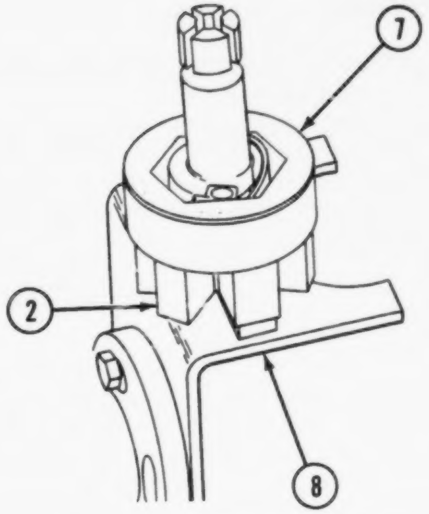
29. REMOVE PREFORMED PACKING FROM HEAD.
    - Remove preformed packing (5) from head (4). Discard preformed packing.



30. REMOVE CAM RING FROM ROTOR ASSEMBLY.
    - Remove cam ring (7) from rotor assembly (2).
    - Remove rotor assembly (2) from holding fixture (8).



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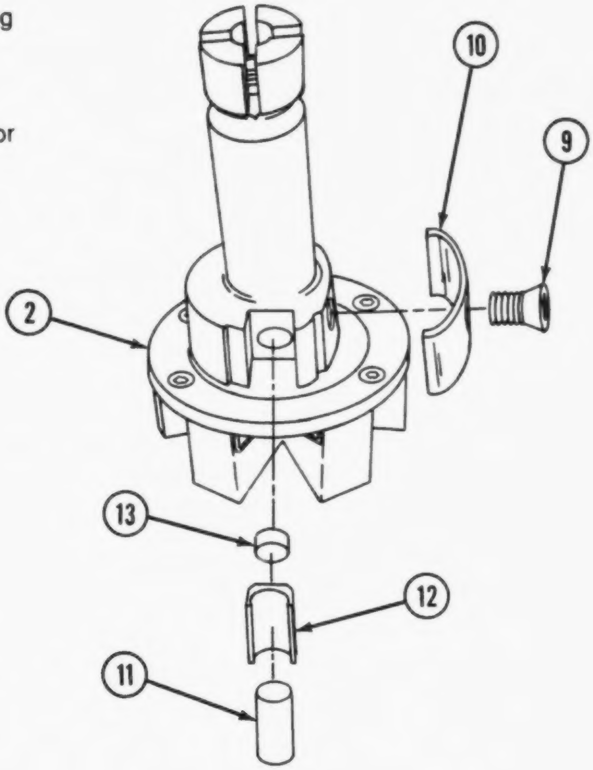
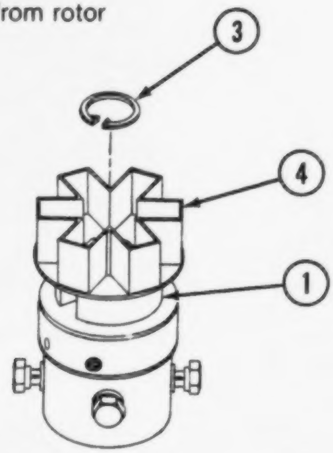
31. REMOVE TWO CAM ROLLERS FROM ROTOR ASSEMBLY.
    - Remove leaf spring screw (9) and leaf spring (10) from rotor assembly (2). Use 5/32 inch hex key.
    - Remove two cam rollers (11), cam roller shoes (12), and rotor plungers (13) from rotor assembly (2).

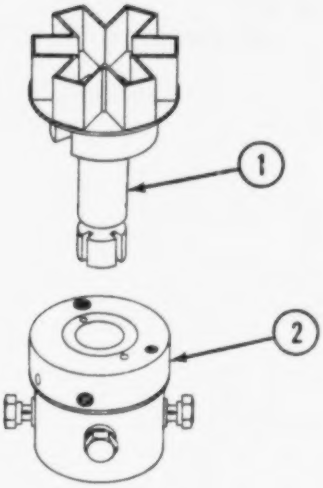


GO TO NEXT PAGE

A. DISASSEMBLY — Continued

32. REMOVE GOVERNOR WEIGHT RETAINER FROM ROTOR ASSEMBLY.
    - Place rotor assembly (1) in head (2).
    - Remove retaining ring (3) from rotor assembly (1). Use retaining ring pliers.
    - Remove weight retainer (4) from rotor assembly (1).





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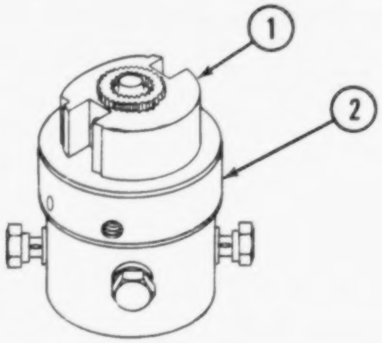
33. REMOVE ROTOR ASSEMBLY (1) FROM HEAD (2).



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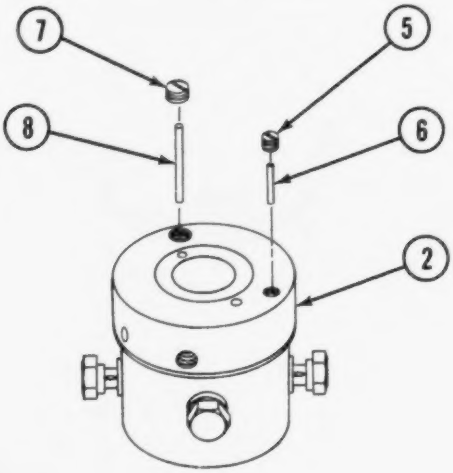
34. REMOVE TWO VENT WIRES FROM HEAD.
    - Remove screw (5) and short vent wire (6) from head (2). Use jeweler's screwdriver.
    - Remove screw (7) and long vent wire (8) from head (2). Use 1/4 inch flat tip screwdriver.



B. CLEANING

WARNING

Fuel can catch fire and burn you. NO SMOKING. Wipe up spilled fuel.

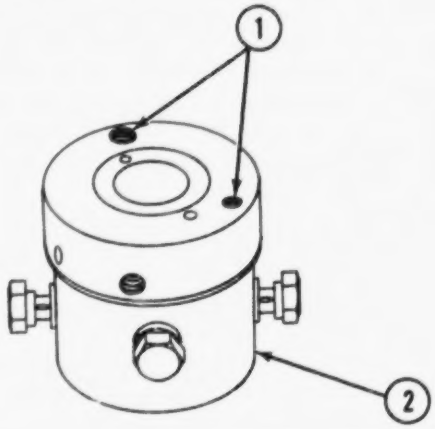
• • • •

Compressed air can hurt you. Never aim air at soldiers or use more pressure than 30 psi (207 kPa). Always wear goggles.

CAUTION

Solenoid will be damaged if placed in solvent or diesel fuel. Do not clean solenoid with solvent or diesel fuel.

1. CLEAN ALL FUEL INJECTION PUMP PARTS.
   - Clean all pump parts. Use clean solvent, wash pan, and paint brush.
   - Clean air bleed passages (1) in head (2). Use soft bore brush.
   - Dry all pump parts. Use compressed air and blow gun. Do not wipe dry.
2. RINSE ALL FUEL INJECTION PUMP PARTS.
   - Rinse all pump parts. Use clean diesel fuel and wash pan.
   - Dry all pump parts. Use compressed air and blow gun. Do not wipe dry.

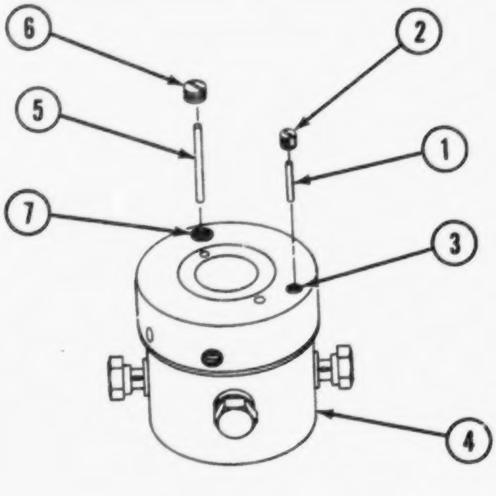


C. REASSEMBLY

NOTE

Do not try to straighten vent wires. Vent wires are slightly bent to function properly in air bleed passages.

1. INSTALL TWO VENT WIRES ON HEAD.
   - Install short vent wire (1) and screw (2) in small air bleed passage (3) on head (4). Use jeweler's screwdriver.
   - Install long vent wire (5) and screw (6) in large air bleed passage (7) on head (4). Use 1/4 inch flat tip screwdriver.



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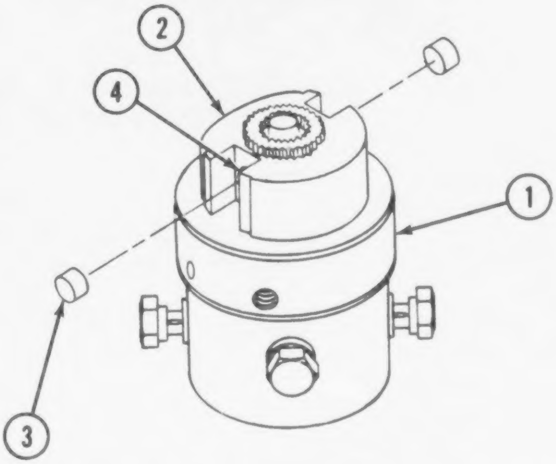
C. REASSEMBLY — Continued

CAUTION

Highly polished surface of rotor shaft can be easily damaged. Do not touch polished surface.

2. INSTALL TWO PLUNGERS IN ROTOR ASSEMBLY.
   - Submerge head (1) and rotor assembly (2) in clean diesel fuel. Use wash pan.
   - Place rotor assembly (2) in head (1).
   - Insert two plungers (3) in plunger opening (4) on rotor assembly (2).
   - Hold two plungers (3) in place.
   - Rock rotor assembly (2) to check two plungers (3) for freedom of movement.
   - Reverse or interchange two plungers (3) as required for free movement of two plungers.
   - If two plungers (3) do not move freely, damage to one or both plungers, head (1), or all three has occurred.



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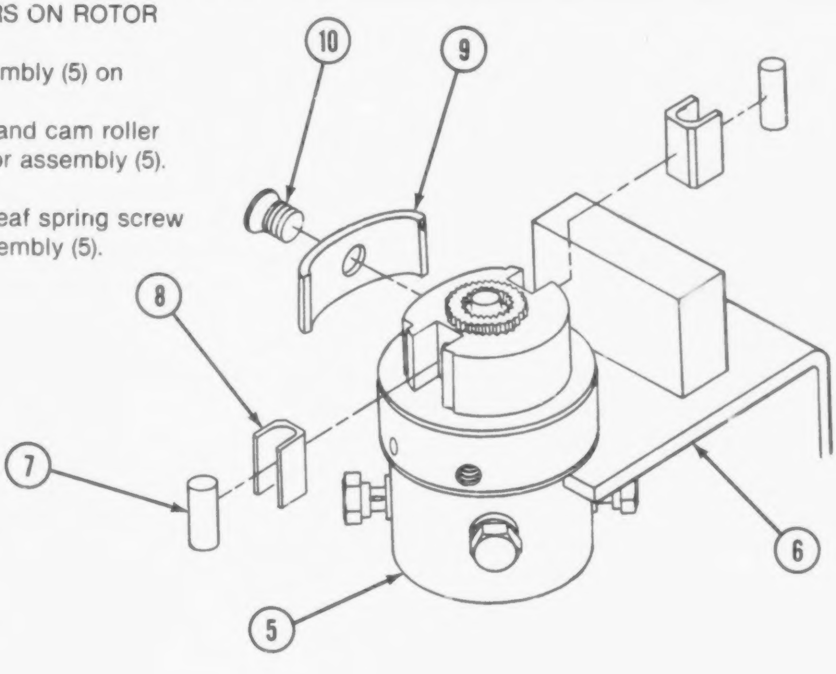
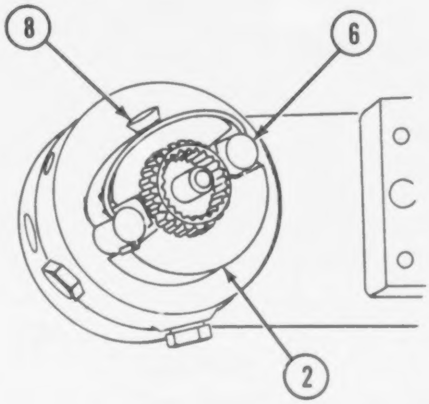
3. INSTALL TWO CAM ROLLERS ON ROTOR ASSEMBLY.
   - Place head and rotor assembly (5) on holding fixture (6).
   - Install two cam rollers (7) and cam roller shoes (8) on head and rotor assembly (5). Use 5/32 inch hex key.
   - Install leaf spring (9) and leaf spring screw (10) on head and rotor assembly (5).



NOTE

Turn leaf spring screw to right to increase outside distance from roller to roller. Turn leaf spring screw to left to decrease outside distance.

4. ADJUST LEAF SPRING TENSION.
   - Rotate rotor assembly (2) until two cam rollers (6) are pushed to extreme outer position.
   - Measure outside distance between two cam rollers (6). Distance should be 1.956 — 1.957 in. (49.68 — 49.71 mm). Use 1 — 2 inch outside micrometer caliper.
   - If distance is not correct, turn leaf spring screw (8) until distance is correct. Use 5/32 inch hex key.



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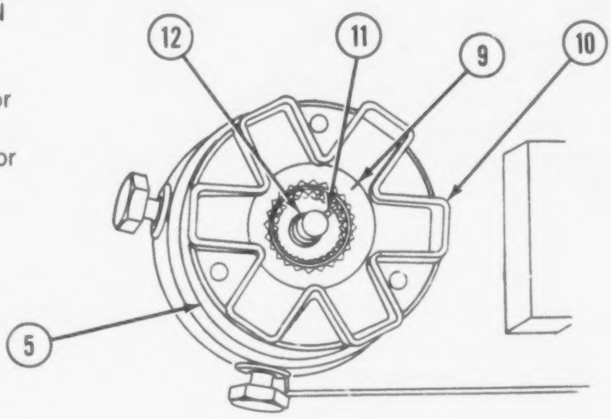
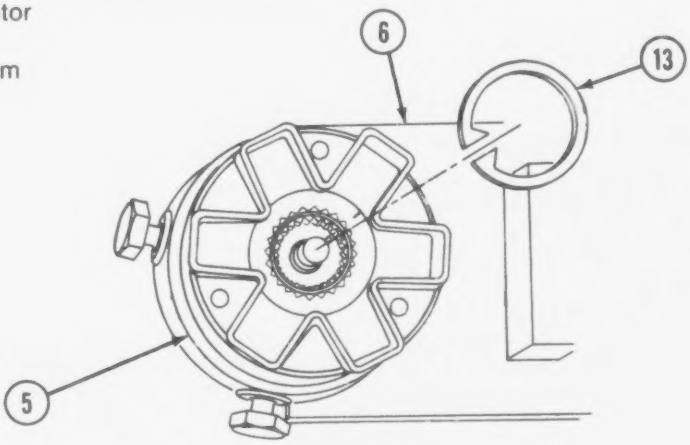
5. INSTALL GOVERNOR WEIGHT RETAINER ON ROTOR.
   - Aline assembly mark (9) on weight retainer (10) with rotor locating pin tang (11) on rotor shaft (12).
   - Install weight retainer (10) on head and rotor assembly (5).



- Install retaining ring (13) on head and rotor assembly (5). Use retaining ring pliers.
- Remove head and rotor assembly (5) from holding fixture (6).



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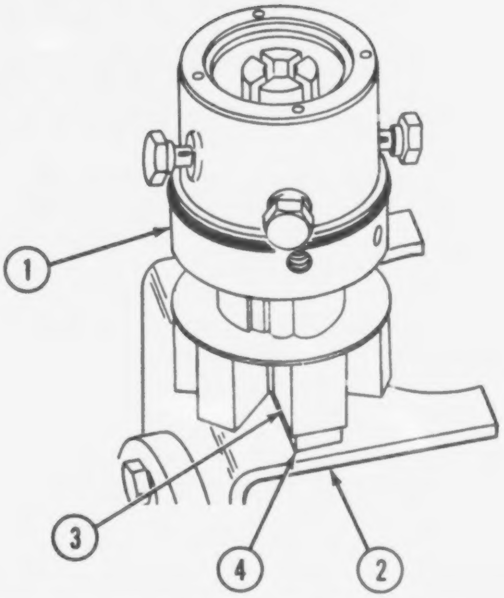
C. REASSEMBLY — Continued

CAUTION

Highly polished surface of rotor shaft can be easily damaged. Do not touch polished surface.

6. INSTALL ROTOR ASSEMBLY ON HOLDING FIXTURE BAR.
   - Install head and rotor assembly (1) on holding fixture (2) with weight retainer (3) engaged on holding fixture bar (4).



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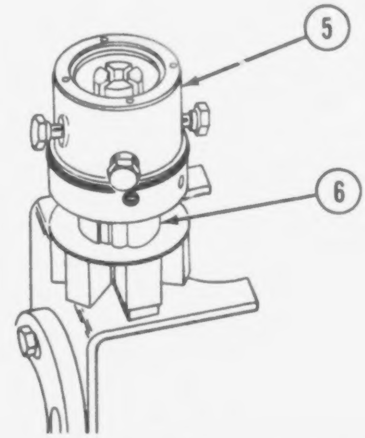
7. REMOVE HEAD (5) FROM ROTOR ASSEMBLY (6).



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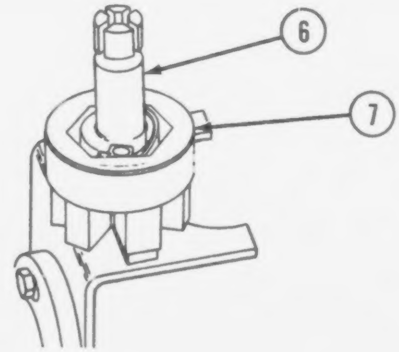
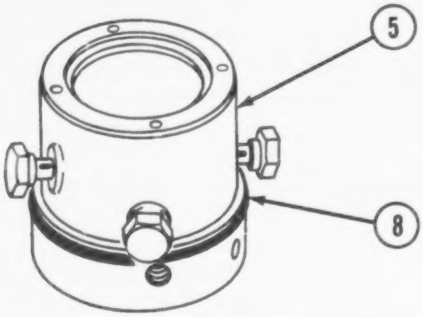
8. INSTALL CAM RING (7) ON ROTOR ASSEMBLY (6).



9. INSTALL NEW PREFORMED PACKING (8) ON HEAD (5).



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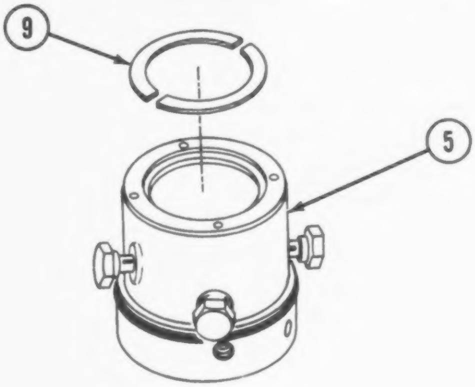
10. PLACE TWO ROTOR RETAINERS IN HEAD.
    - Place two retainers (9) in head (5) as far outward as possible.



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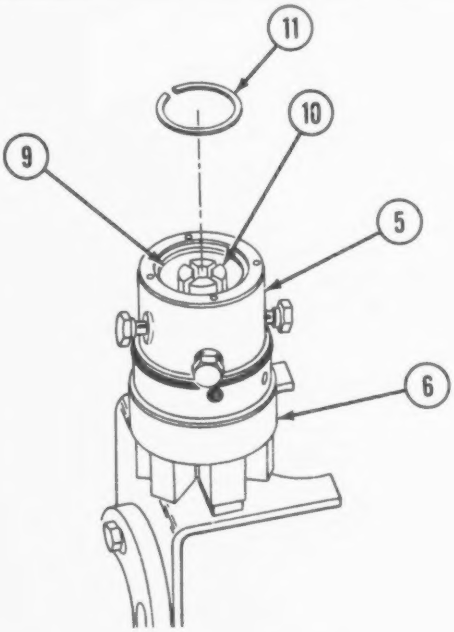
11. INSTALL HEAD ON ROTOR ASSEMBLY.
    - Place head (5) on rotor assembly (6).
    - Position two rotor retainers (9) against rotor shaft (10).
    - Install rotor retainer ring (11) on two rotor retainers (9). Use two 1/4 inch flat tip screwdrivers.



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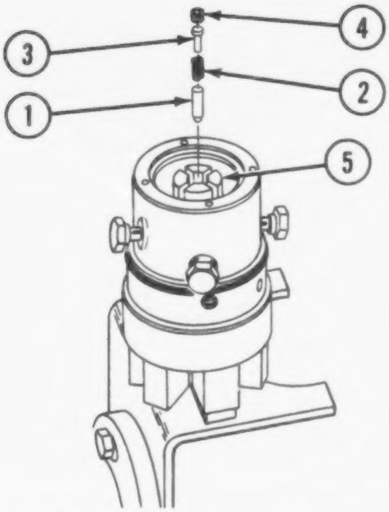
C. REASSEMBLY — Continued

12. INSTALL DELIVERY VALVE ON HEAD AND ROTOR ASSEMBLY.
    - Install valve (1), valve spring (2), valve stop (3), and delivery valve screw (4) on rotor shaft (5). Use 5/32 inch hex screwdriver bit and 1/4 inch socket with 1/4 inch drive ratchet handle. Do not tighten.
    - Torque delivery valve screw (4) to 85 — 90 in. lb (97.7 — 103.7 cmkg). Use 5/32 inch hex screwdriver bit and 1/4 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench.



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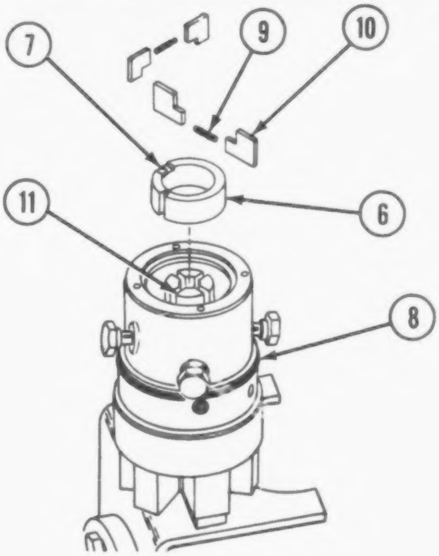
13. INSTALL FOUR PUMP BLADES ON HEAD AND ROTOR ASSEMBLY.
    - Install transfer pump liner (6), with letter "C" (7) up, in head and rotor assembly (8).
    - Install two springs (9) on four pump blades (10).
    - Install four blades (10) on four rotor shaft slots (11).



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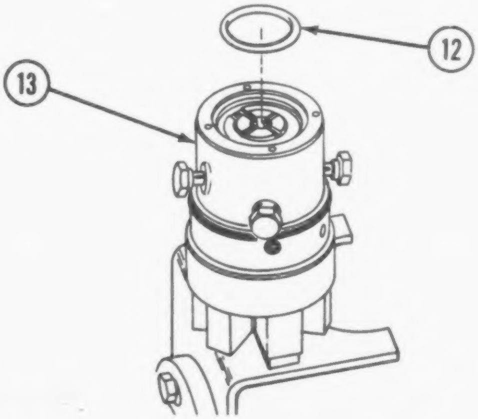
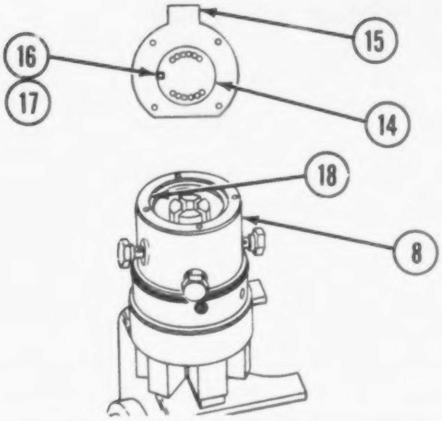
14. INSTALL NEW TRANSFER PUMP SEAL (12) ON HEAD AND ROTOR ASSEMBLY (13).



15. POSITION THRUST PLATE AND END PLATE ON HEAD AND ROTOR ASSEMBLY.
    - Apply light coat of grease to edge of thrust plate (14), to hold thrust plate in place during reassembly.
    - Position thrust plate (14) on end plate (15) with notch (16) alined over locating pin (17).
    - Position thrust plate (14) and end plate (15) on head and rotor assembly (8) with locating pin (17) in transfer pump liner slot (18).



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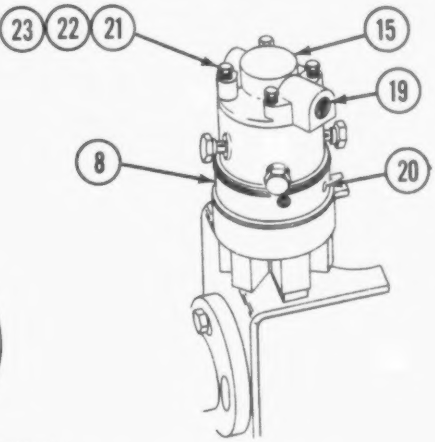
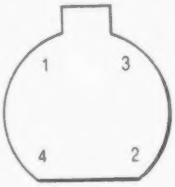
16. INSTALL END PLATE ON HEAD AND ROTOR ASSEMBLY.
    - Aline inlet opening (19) with metering valve opening (20).
    - Install end plate (15), four washers (21), new lock washers (22), and screws (23) on head and rotor assembly (8).
    - Torque four screws (23) to 25 — 30 in. lb (28.8 — 34.6 cmkg). Use 5/16 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench. (See following End Plate Torquing Sequence.)



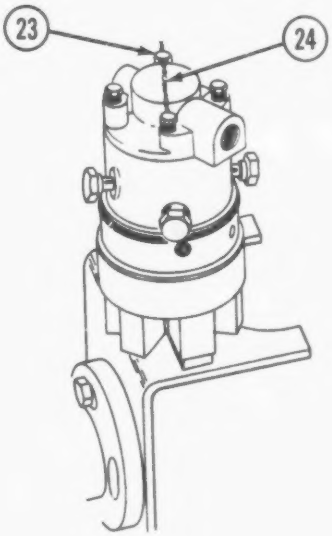


End Plate Torquing Sequence

WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

17. INSTALL NEW SAFETY WIRE ON TWO END PLATE SCREWS.
    - Install new safety wire (24) on two diagonally located screws (23). Use slip joint pliers.



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C. REASSEMBLY — Continued

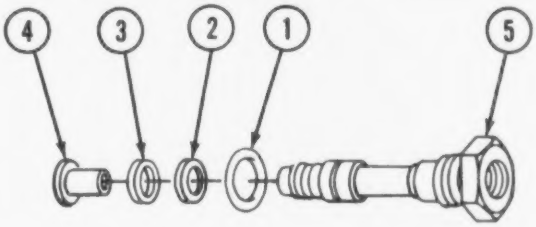
NOTE

Piston seal must be installed dry.

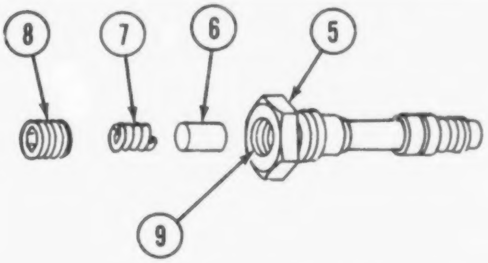
• • • •

Regulating piston must slide freely in pressure regulating sleeve assembly.

18. ASSEMBLE PRESSURE REGULATING SLEEVE ASSEMBLY.
    - Install new sleeve seal ring (1), new element seal (2), new preformed packing (3), and new piston seal (4) on sleeve assembly (5).



- Apply light coat of diesel fuel on regulating piston (6).
- Install regulating piston (6), regulating spring (7), and adjusting plug (8) in sleeve assembly (5). Use 5/32 inch hex key and 3/4 inch box end wrench.
- Tighten adjusting plug (8) until below port (9). Use 5/32 inch hex key and 3/4 inch box end wrench.



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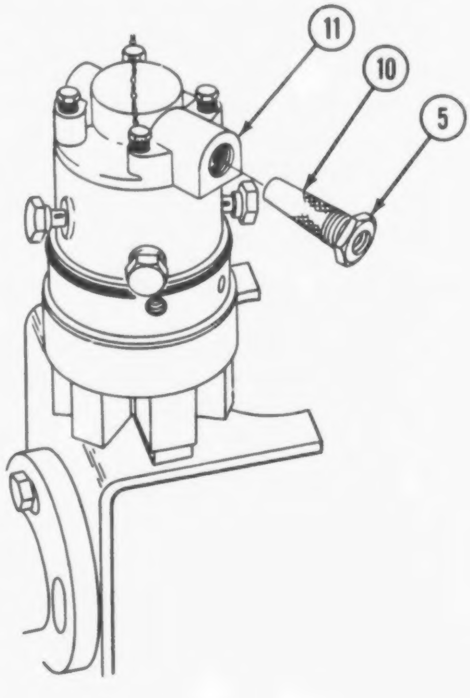
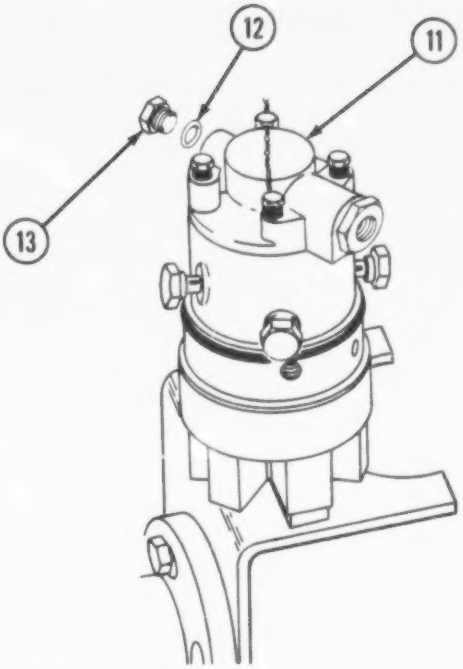
19. INSTALL PRESSURE REGULATING SLEEVE ASSEMBLY IN END PLATE.
    - Seat sleeve assembly (5) on filter element (10).
    - Install sleeve assembly (5) in end plate (11).
    - Torque sleeve assembly (5) to 240 in. lb (276.5 cmkg). Use 3/4 inch socket with 1/2 inch drive torque wrench.



20. INSTALL END PLATE PLUG ON END PLATE.
    - Install new seal (12) and end plate plug (13) on end plate (11).
    - Torque end plate plug (13) to 30 ft lb (4.2 mkg). Use 7/16 inch socket with 1/2 inch drive torque wrench.



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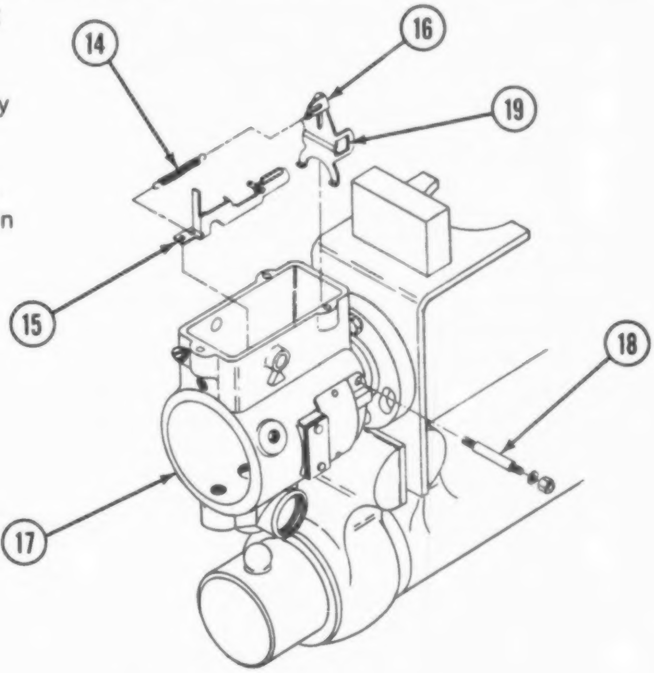
21. INSTALL GOVERNOR ARM AND GOVERNOR LINKAGE HOOK ASSEMBLY ON FUEL INJECTION PUMP.
    - Install linkage spring (14) on hook assembly (15).
    - Place governor arm (16) in pump (17).
    - Install pivot arm shaft (18), with knife edge to rear, on pump (17) and through slot (19) in governor arm (16).
    - Install linkage spring (14) with hook assembly (15) on governor arm (16).



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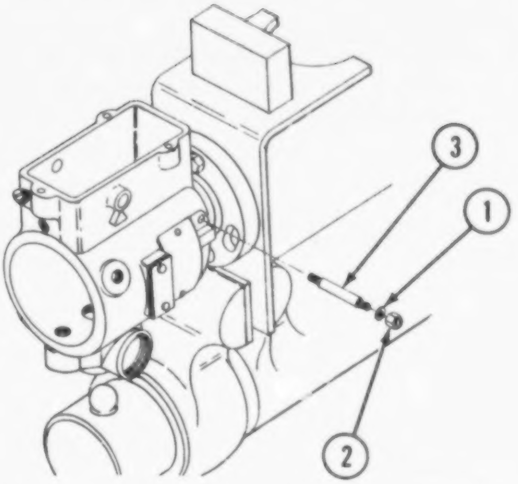
C. REASSEMBLY — Continued

- Install two new seals (1) and retaining nuts (2) on pivot arm shaft (3).
- Torque two retaining nuts (2) to 20 — 25 in. lb (23.0 — 28.8 cmkg). Use 5/16 inch open end wrench and 5/16 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench.



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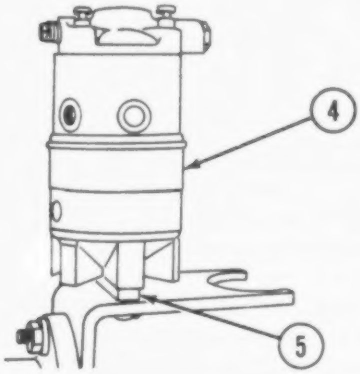
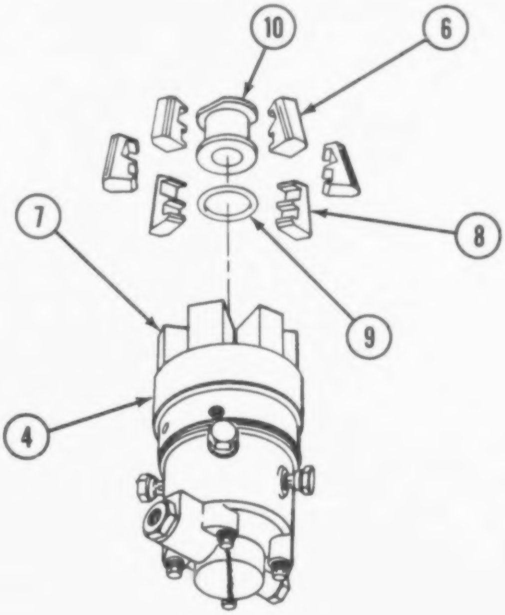
22. INSTALL SIX GOVERNOR WEIGHTS IN HEAD AND ROTOR ASSEMBLY.

- Remove head and rotor assembly (4) from holding fixture bar (5).



- Position six weights (6) in six weight retainer sockets (7) with large slots (8) on bottom facing center.
- Tilt tops of six weights (6) outward.
- Install sleeve washer (9) with beveled edge up, and thrust sleeve (10) with circular edge down, on head and rotor assembly (4).
- Aline six weights (6) with tops level, collapsed against thrust sleeve (10).



CAUTION

Seal can be damaged, allowing pump to leak, if head and rotor assembly is not installed correctly. Slide assembly into pump with slight rotary motion. Do not use force.

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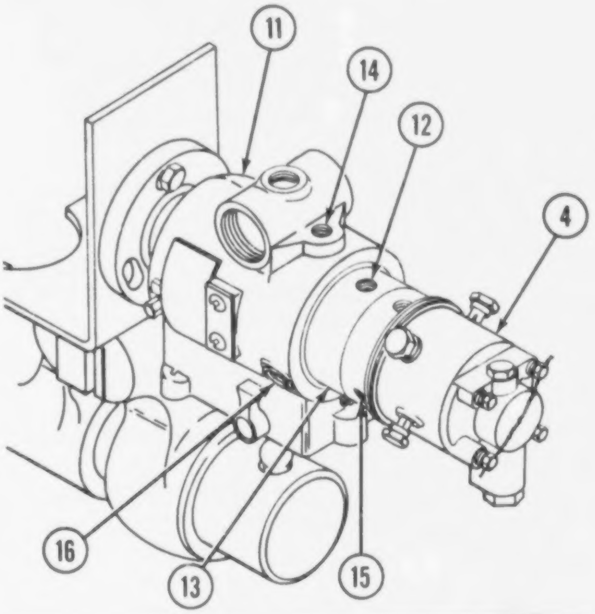
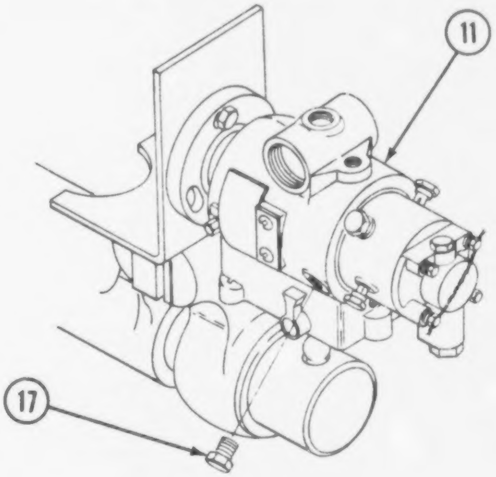
Improper cam ring alinement will damage pump or prevent operation. Cam ring must move freely after installation of head locating screw and head locking screws.

23. INSTALL HEAD AND ROTOR ASSEMBLY ON FUEL INJECTION PUMP.
    - Apply light coat of grease to inside edge of pump (11).
    - Aline threaded opening (12) on cam ring (13) with locating screw opening (14).
    - Slide head and rotor assembly (4) into pump (11).
    - Aline two locking screw openings (15) on head and rotor assembly (4) with two openings (16) on pump (11).



- Install two head locking screws (17) on pump (11).
- Torque two head locking screws (17) to 25 ft lb (3.5 mkg). Use 1/2 inch socket with 1/2 inch drive torque wrench.



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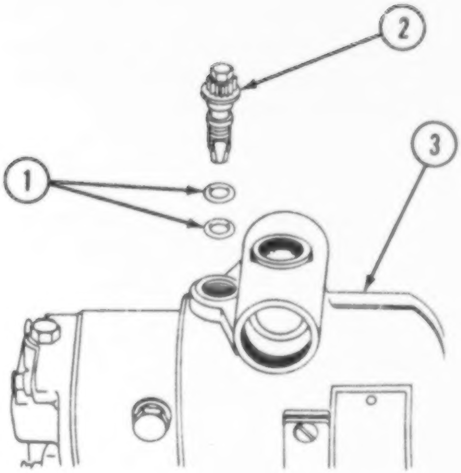
C. REASSEMBLY — Continued

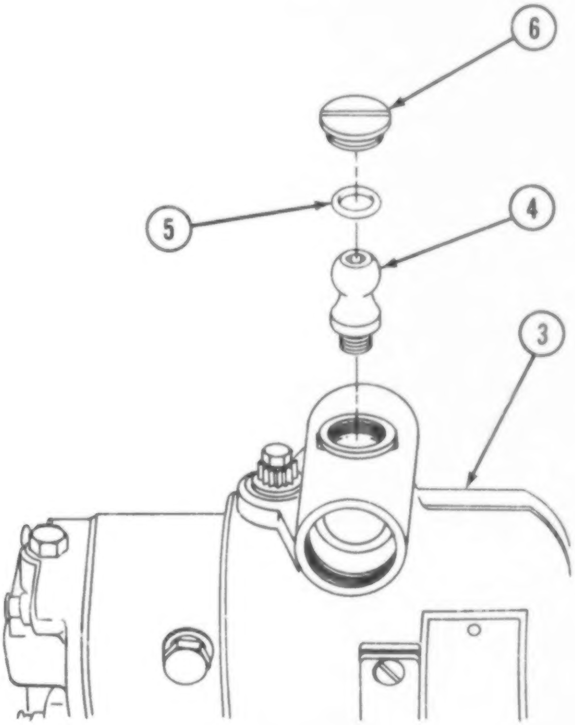
24. INSTALL HEAD LOCATING SCREW ASSEMBLY ON FUEL INJECTION PUMP.
    - Install two new seals (1) and screw assembly (2) on pump (3).
    - Torque screw assembly (2) to 25 ft lb (3.5 mkg). Use 7/16 inch deep socket with 1/4 inch male wrench adapter and 3/8 inch drive torque wrench.



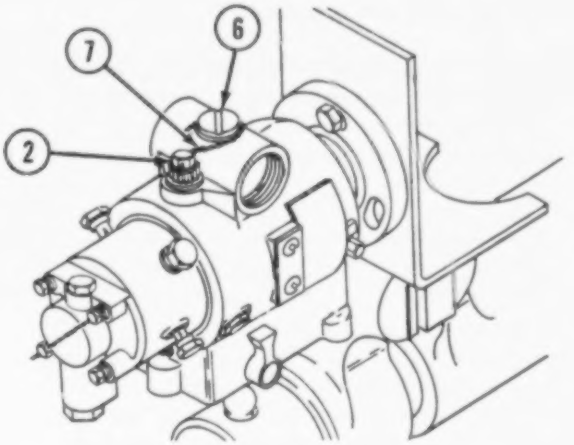
WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

25. INSTALL CAM ADVANCE SCREW ON FUEL INJECTION PUMP.
    - Install advance screw (4) on pump (3). Use 1/4 inch hex key.
    - Install new preformed packing (5) and screw hole plug (6) on pump (3).



- Torque screw hole plug (6) to 40 in. lb (45.1 cmkg). Use 3/8 inch flat tip screwdriver bit with 3/8 inch drive torque wrench.
- Install new safety wire (7) on screw hole plug (6) and screw assembly (2). Use slip joint pliers.



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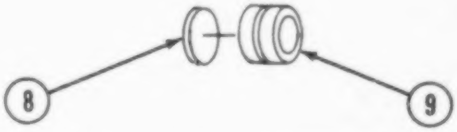
26. PLACE SLIDE WASHER ON SPRING PISTON.
    - Apply light coat of diesel fuel on slide washer (8).
    - Place slide washer (8) on spring piston (9).



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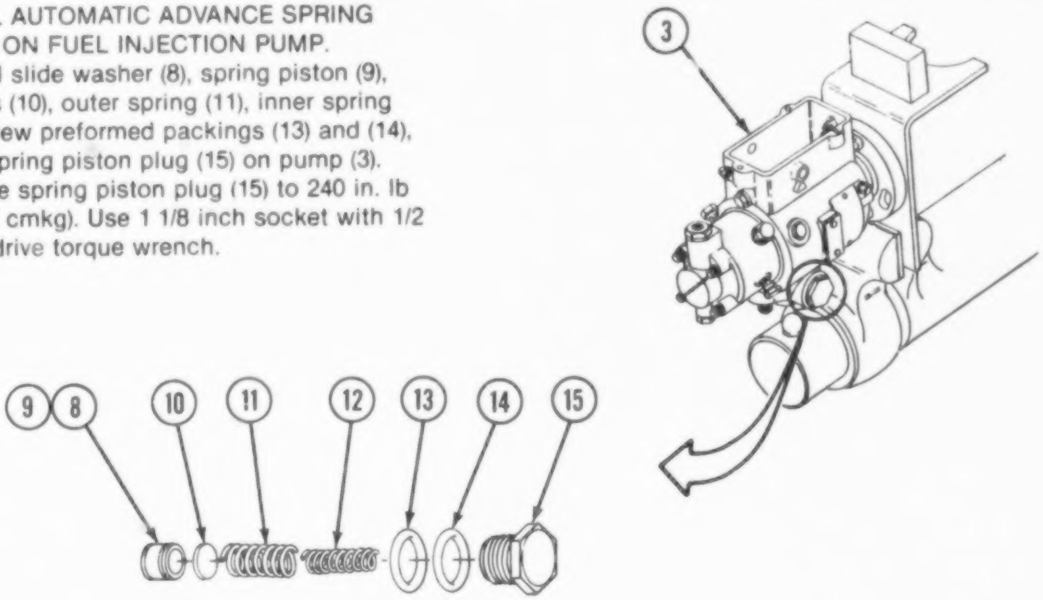
27. INSTALL AUTOMATIC ADVANCE SPRING PISTON ON FUEL INJECTION PUMP.
    - Install slide washer (8), spring piston (9), shims (10), outer spring (11), inner spring (12), new preformed packings (13) and (14), and spring piston plug (15) on pump (3).
    - Torque spring piston plug (15) to 240 in. lb (276.5 cmkg). Use 1 1/8 inch socket with 1/2 inch drive torque wrench.



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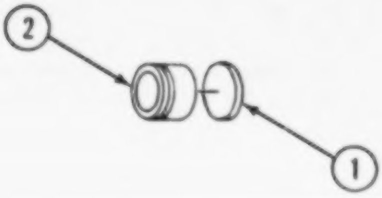
C. REASSEMBLY — Continued

28. PLACE SLIDE WASHER ON POWER PISTON.
    - Apply light coat of diesel fuel on slide washer (1).
    - Place slide washer (1) on power piston (2).



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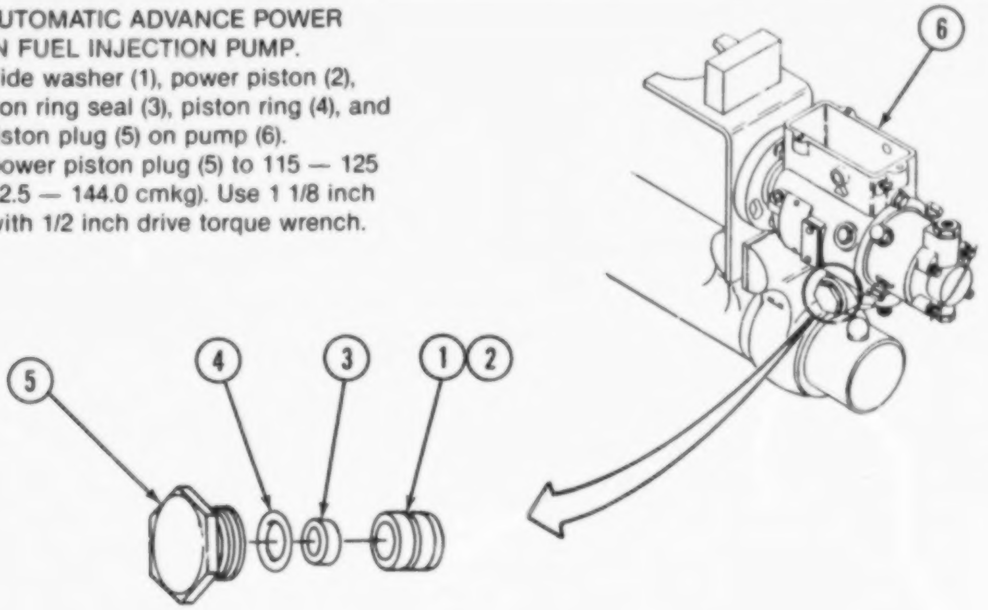
29. INSTALL AUTOMATIC ADVANCE POWER PISTON ON FUEL INJECTION PUMP.
    - Install slide washer (1), power piston (2), new piston ring seal (3), piston ring (4), and power piston plug (5) on pump (6).
    - Torque power piston plug (5) to 115 — 125 in. lb (132.5 — 144.0 cmkg). Use 1 1/8 inch socket with 1/2 inch drive torque wrench.



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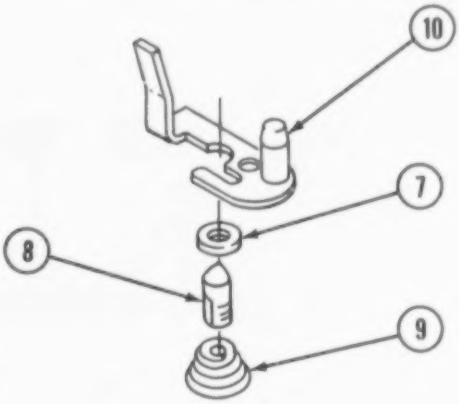
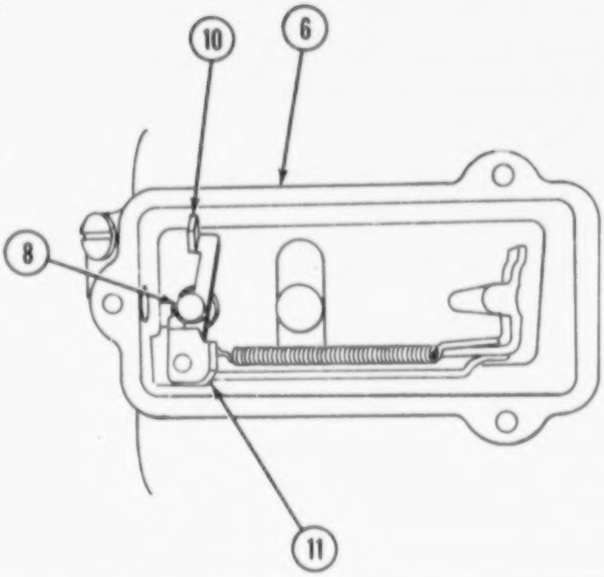
30. INSTALL METERING VALVE SHIM (7), METERING VALVE (8), AND VALVE SPRING (9) ON METERING VALVE ARM ASSEMBLY (10).



31. INSTALL METERING VALVE ARM ASSEMBLY ON FUEL INJECTION PUMP.
   - Raise hook assemby (11) to clear arm assembly (10).
   - Install arm assembly (10) on pump (6).
   - Lower and position hook assembly (11) on arm assembly (10) and metering valve (8).



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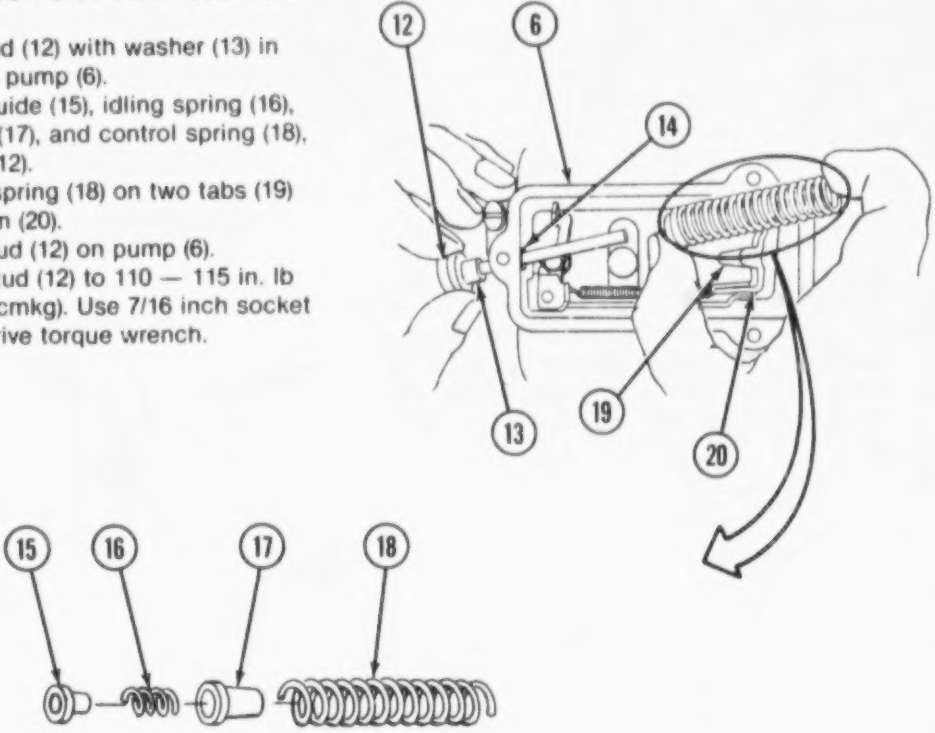
32. INSTALL GOVERNOR ON FUEL INJECTION PUMP.
   - Place guide stud (12) with washer (13) in opening (14) on pump (6).
   - Install spring guide (15), idling spring (16), spring retainer (17), and control spring (18), on guide stud (12).
   - Install control spring (18) on two tabs (19) on governor arm (20).
   - Install guide stud (12) on pump (6).
   - Torque guide stud (12) to 110 — 115 in. lb (126.7 — 132.5 cmkg). Use 7/16 inch socket with 1/2 inch drive torque wrench.



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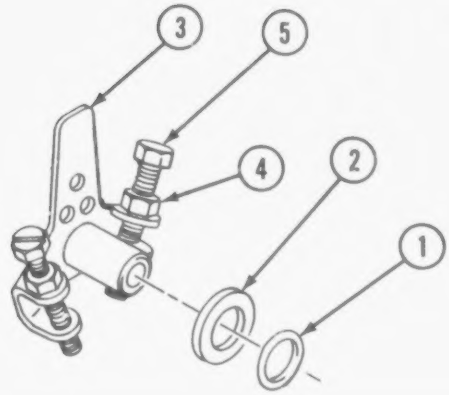
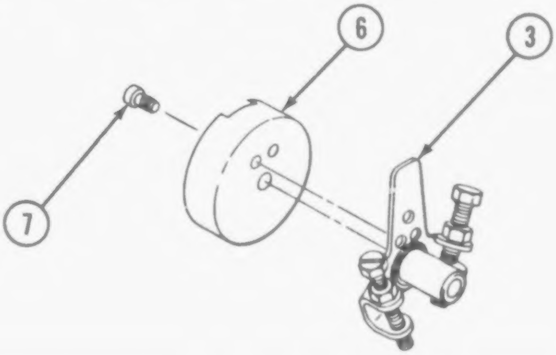
C. REASSEMBLY — Continued

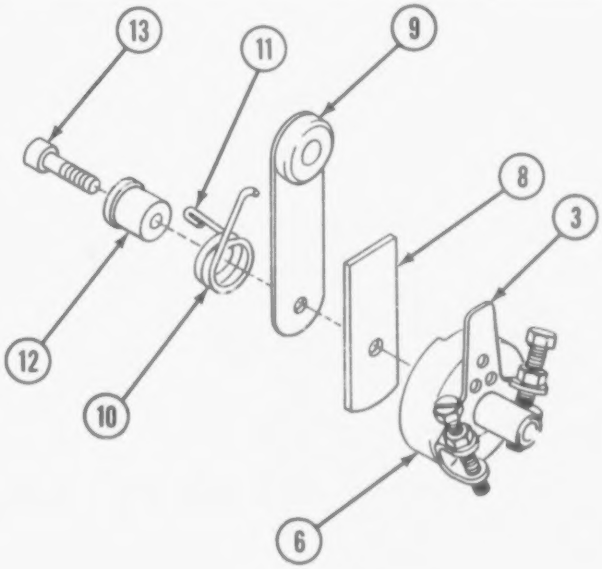
33. ASSEMBLE THROTTLE SHAFT ASSEMBLY.
    - Apply light coat of grease to new seal (1).
    - Install washer (2) and seal (1) on throttle shaft assembly (3).
    - Install two adjusting nuts (4) on two adjusting screws (5).
    - Install two adjusting screws (5) with two adjusting nuts (4) on throttle shaft assembly (3).



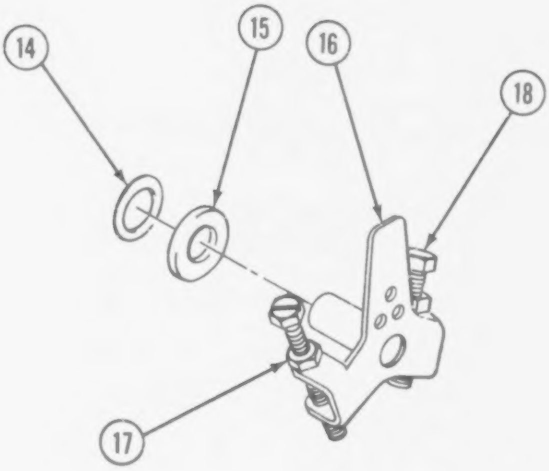
34. INSTALL SPACER AND THROTTLE LEVER ASSEMBLY ON THROTTLE SHAFT ASSEMBLY.
    - Install spacer (6) and screw (7) on throttle shaft assembly (3). Use 5/64 inch hex key.



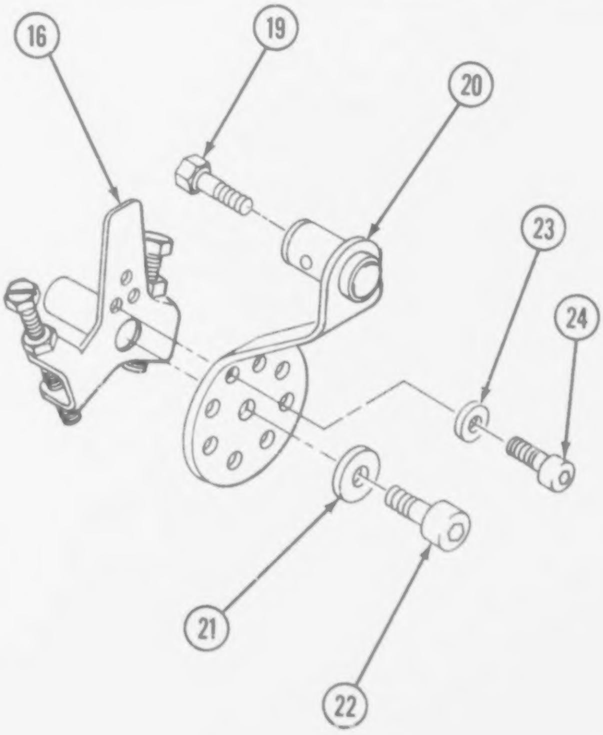
- Aline adjusting arm (8), throttle lever (9), lever spring (10), and spacer (6).
- Engage two spring tangs (11) over edges of adjusting arm (8) and throttle lever (9).
- Install adjusting arm (8), throttle lever (9), lever spring (10), spring retainer (12), and screw (13) on throttle shaft assembly (3). Use 5/32 inch hex key.



35. ASSEMBLE FUEL SHUTOFF SHAFT ASSEMBLY.
    - Apply light coat of grease to new seal (14).
    - Install washer (15) and seal (14) on shutoff shaft assembly (16).
    - Install two adjusting nuts (17) on two adjusting screws (18).
    - Install two adjusting screws (18) with two adjusting nuts (17) on shutoff shaft assembly (16).



36. ASSEMBLE ARM ASSEMBLY ON FUEL SHUTOFF SHAFT ASSEMBLY.
    - Install stop screw (19) on arm assembly (20).
    - Install arm assembly (20), new lock washer (21), and screw (22) on shutoff shaft assembly (16).
    - Install washer (23) and adjusting screw (24) on arm assembly (20) and shutoff shaft assembly (16).



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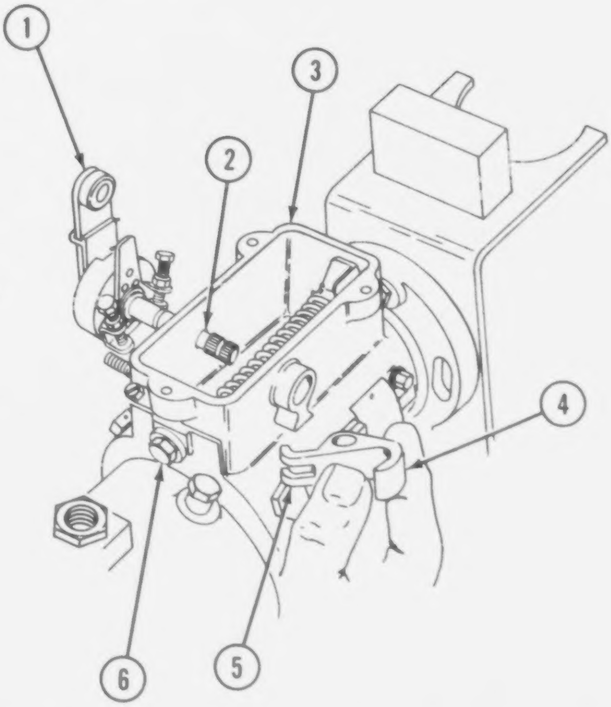
C. REASSEMBLY — Continued

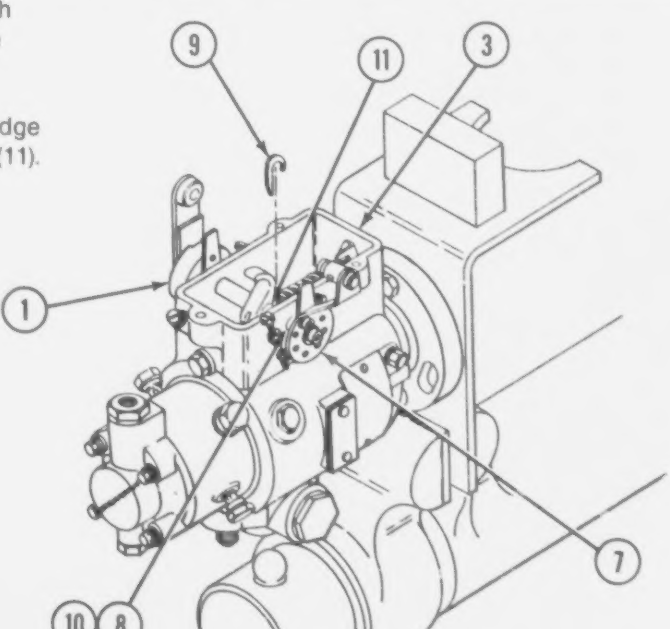
NOTE

Replace shutoff cam if it does not snap in place.

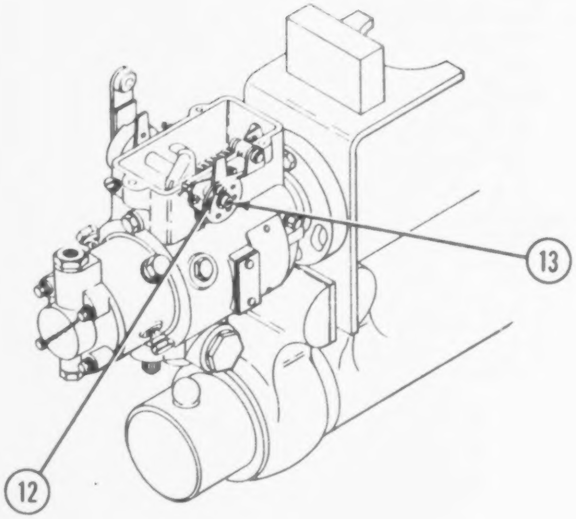
37. INSTALL FUEL SHUTOFF SHAFT AND THROTTLE SHAFT ASSEMBLIES ON FUEL INJECTION PUMP.
    - Place throttle shaft assembly (1) in opening (2) on pump (3).
    - Install throttle shaft lever (4) on throttle shaft assembly (1), with two forks (5) straddling guide stud (6).



- Install shutoff shaft assembly (7) through opening (8) on pump (3) and into throttle shaft assembly (1).
- Aline shutoff cam (9) over fuel shutoff assembly shaft (10) with straight inner edge in governor linkage hook assembly slot (11).
- Snap shutoff cam (9) into place on fuel shutoff assembly shaft (10).



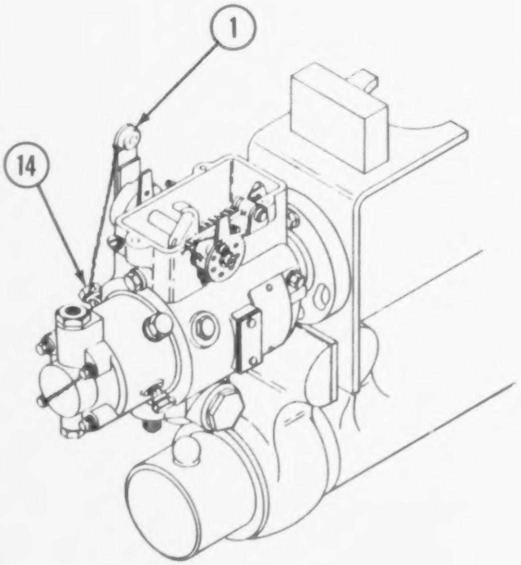
38. TIGHTEN TWO FUEL SHUTOFF SHAFT ASSEMBLY SCREWS.
    - Torque screw (12) to 25 — 30 in. lb (28.8 — 34.6 cmkg). Use 5/64 inch hex screwdriver bit and 1/4 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench.
    - Torque screw (13) to 35 — 40 in. lb (40.3 — 46.1 cmkg). Use 5/32 inch hex screwdriver bit and 1/4 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench.



WARNING

Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

39. SECURE THROTTLE CONTROL LEVER IN OPEN POSITION.
    - Move throttle shaft assembly (1) fully to left (open position).
    - Secure throttle shaft assembly (1), in open position, to fuel connector screw (14). Use safety wire and slip joint pliers.



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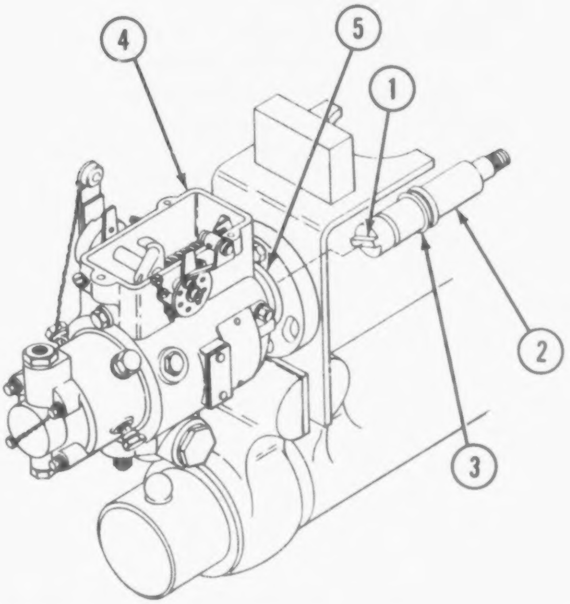
C. REASSEMBLY — Continued

40. INSTALL DRIVE SHAFT IN FUEL INJECTION PUMP.
    - Measure flat thickness of drive shaft tang (1). Use 0 — 1 inch outside micrometer caliper.
    - If flat thickness is less than 0.305 in. (7.75 mm), replace drive shaft (2).
    - Install two new preformed packings (3) on drive shaft (2).
    - Install drive shaft (2) in pump (4) with drive shaft tang (1) engaged in rotor slot (5).



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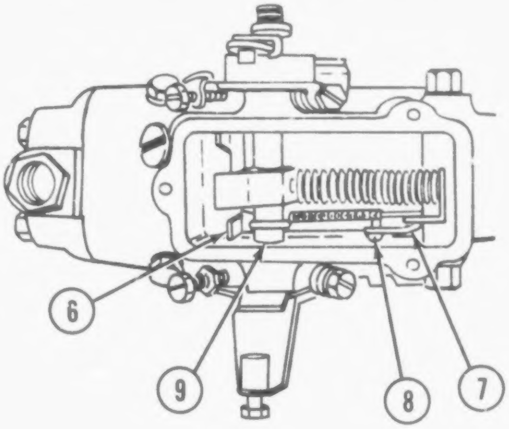
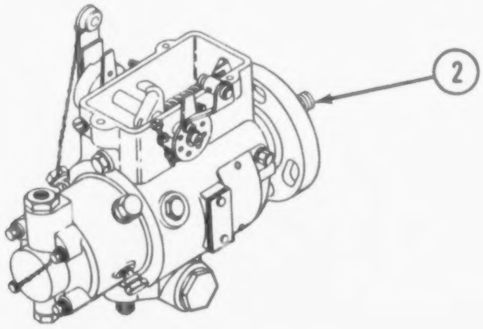
41. ADJUST THROTTLE SHUTOFF LINKAGE.
    - Apply slight pressure to vertical tab (6) on hook assembly (7), while rotating drive shaft (2) until hook assembly is full forward.
    - Loosen adjusting screw (8). Use linkage hook wrench.
    - Slide hook assembly (7) to full length.
    - Place linkage hook adjustment gage between rear of shutoff assembly shaft (9) and vertical tab (6).
    - Slide hook assembly (7) together from rear until face of vertical tab (6) is flush against linkage hook adjustment gage.
    - Tighten adjusting screw (8). Use linkage hook wrench.





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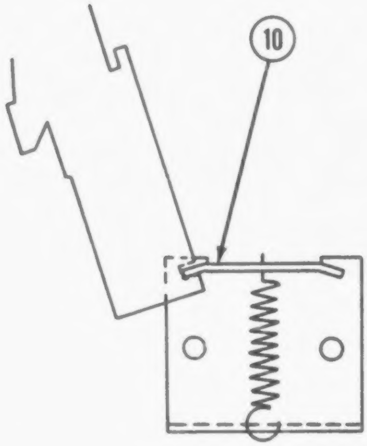
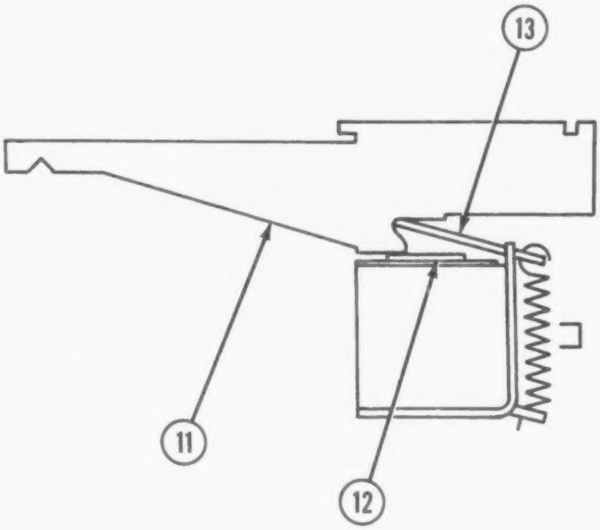
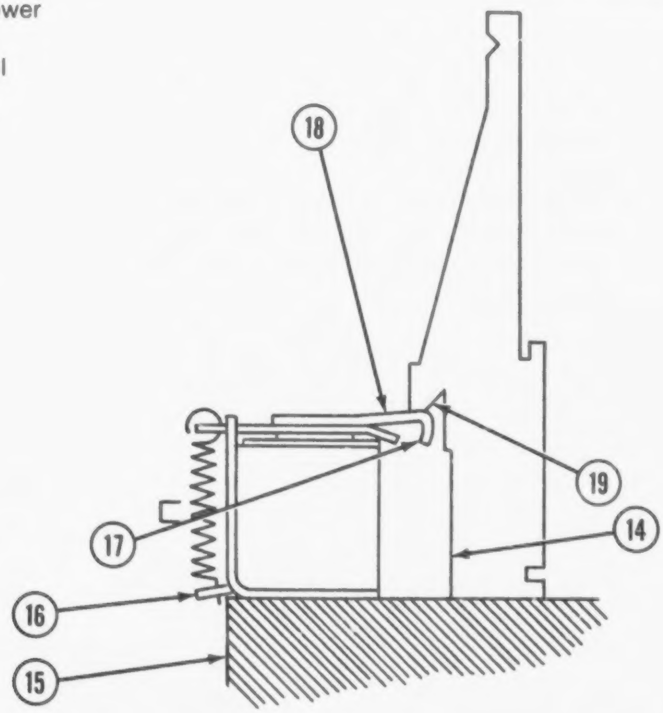
42. ADJUST SOLENOID ARMATURE TRAVEL.

- Adjust armature assembly (10) so shutoff adjustment tool arm (11) fits between solenoid core (12) and armature tab (13). Use electric shutoff adjustment tool.





- Place solenoid (14) on bench (15) with lower spring tab (16) over edge of bench.
- Adjust shutoff tab (17) at center (18) until shutoff tab in closed position fits under shutoff adjustment tool arm (19). Use electric shutoff adjustment tool.



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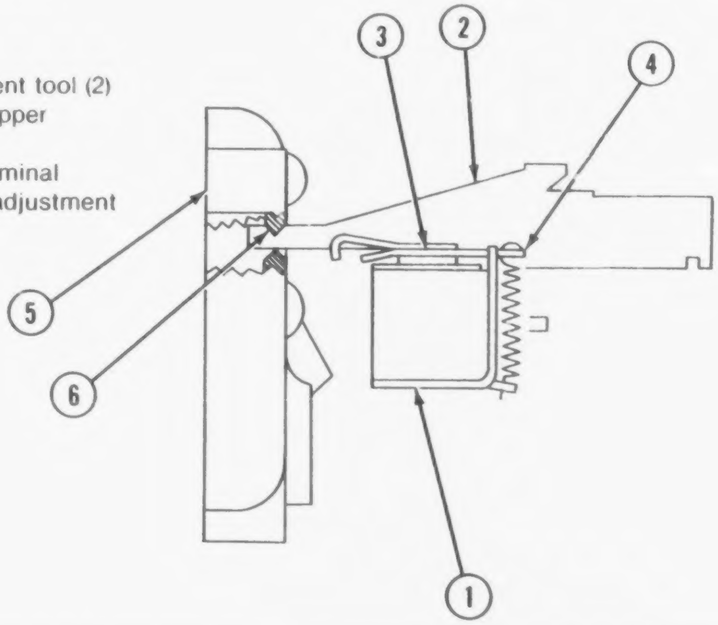
C. REASSEMBLY — Continued

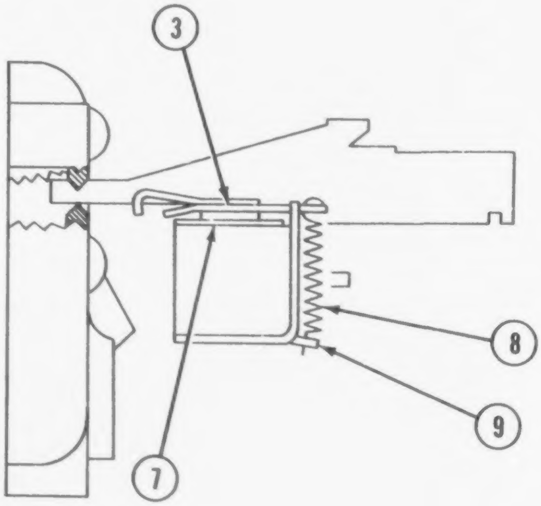
NOTE

Spread spring to close gap between armature tab and solenoid core. Bend lower spring tab to open gap.

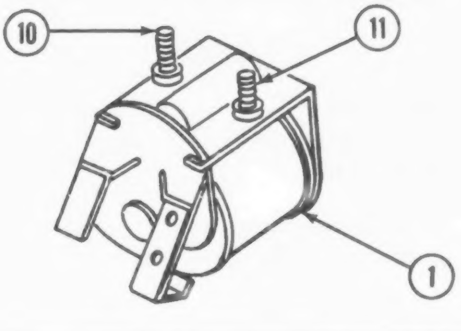
43. ADJUST ARMATURE GAP.
- Hold solenoid (1). Use vise.
- Position electric shutoff adjustment tool (2) on armature tab (3) and against upper spring tab (4).
- Suspend governor cover (5) by terminal opening (6) from electric shutoff adjustment tool (2).



- Measure gap between armature tab (3) and solenoid core (7). Use thickness gage. Gap should be 0.005 — 0.010 in. (0.127 — 0.254 mm).
- If gap is not correct, spread spring (8) or bend lower spring tab (9) to correct gap. Use 1/4 inch flat tip screwdriver and slip joint pliers.



44. TEST SOLENOID FOR RESISTANCE.
    - Set multimeter selector switch to X1 ohms.
    - Zero multimeter.
    - Position multimeter (+) probe on contact screw (10).
    - Position multimeter (−) probe on contact screw (11).
    - If multimeter reading is not zero, replace solenoid (1).



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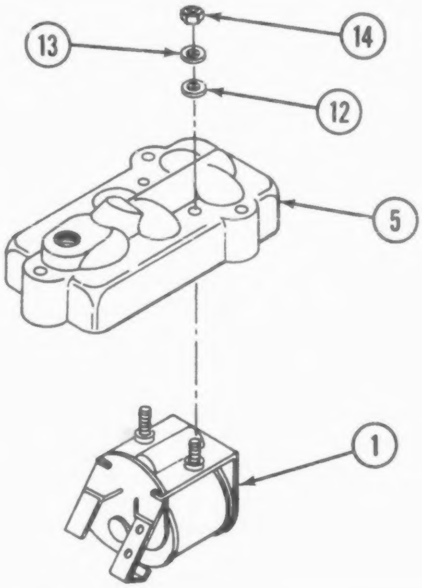
45. INSTALL SOLENOID FRAME AND ARM ASSEMBLY ON GOVERNOR CONTROL COVER.
    - Install solenoid (1), two insulating washers (12), washers (13), and nuts (14) on cover (5).
    - Torque two nuts (14) to 20 in. lb (23.0 cmkg). Use 11/32 inch socket with 1/4 inch male socket wrench adapter and 3/8 inch drive torque wrench.



WARNING

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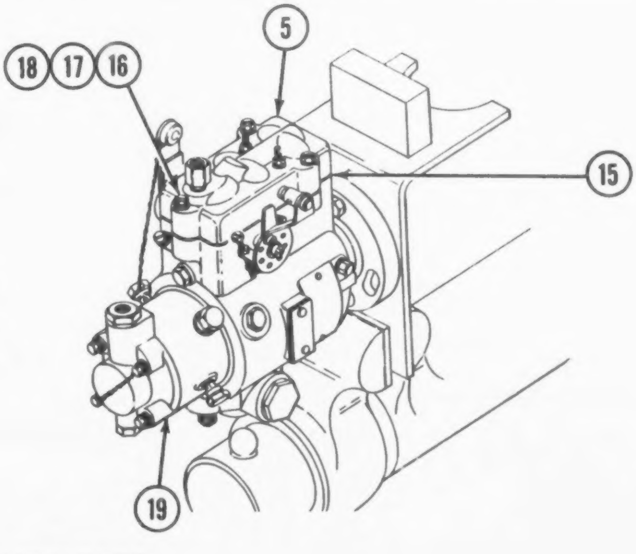
46. INSTALL GOVERNOR CONTROL COVER ON FUEL INJECTION PUMP.
    - Install new gasket (15), cover (5), three new lock washers (16), washers (17), and screws (18) on pump (19).
    - Torque three screws (18) to 40 in. lb (46.1 cmkg). Use 5/16 inch flat tip screwdriver bit with 3/8 inch drive torque wrench.



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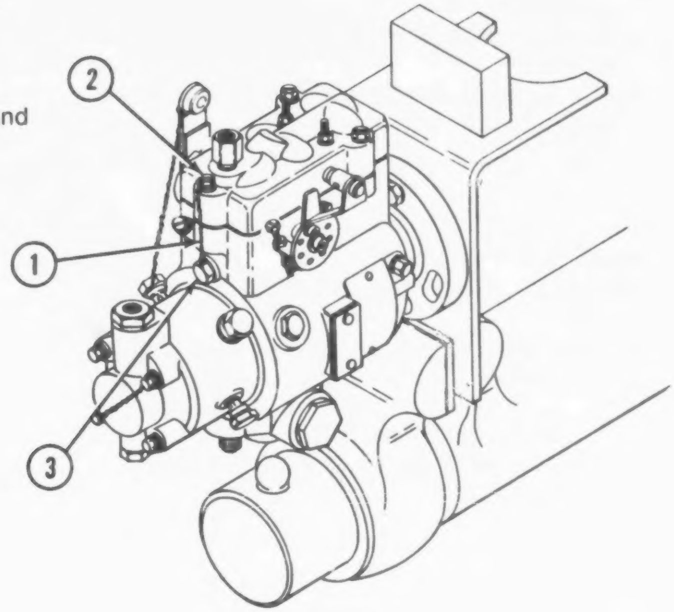
C. REASSEMBLY — Continued

WARNING

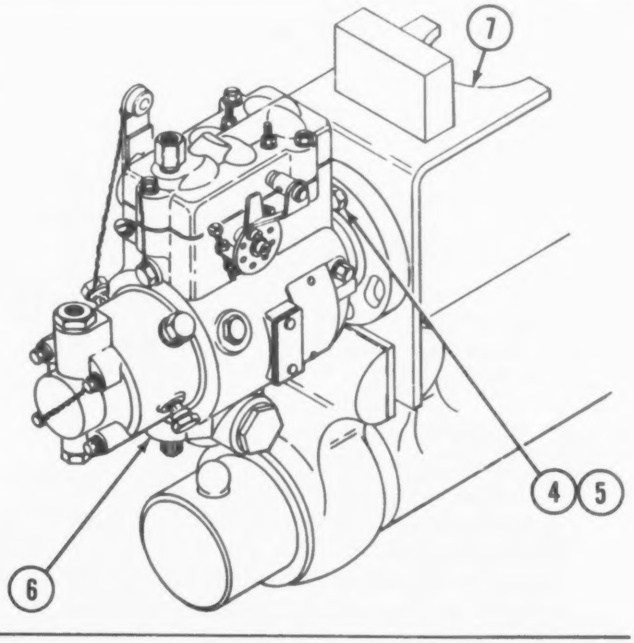
Flying bits of metal can blind you. Always wear goggles when you cut metal or use power tools.

- Install new safety wire (1) on screw (2) and guide stud (3). Use slip joint pliers.



47. REMOVE FUEL INJECTION PUMP FROM HOLDING FIXTURE.
    - Remove two nuts (4), washers (5), and pump (6) from holding fixture (7). Use 9/16 inch open end wrench.

48. BENCH TEST FUEL INJECTION PUMP. (SEE FUEL INJECTION PUMP BENCH TEST, PAGE 15-517.)



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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

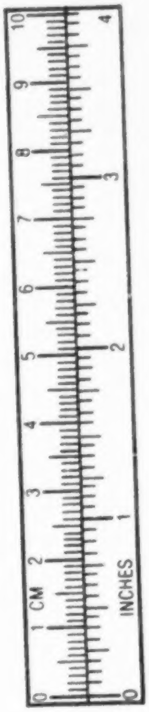
TEMPERATURE

5/9 (°F – 32) = °C
212° Farenheit is equivalent to 100° Celsius
90° Farenheit is equivalent to 32.2° Celsius
32° Farenheit is equivalent to 0° Celsius
9/5 (°C) + 32 = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pounds per Square Inch	Kilopascals	6.895
Pounds per Square Inch	Kilograms per Square Centimeter	0.070
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Kilograms per Square Centimeter	Pounds per Square Inch	14.220
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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